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PUBLISHED BY THE COMMITTEE FOR THE SCIENTIFIC INVESTIGATION OF CLAIMS OF THE PARANORMAL

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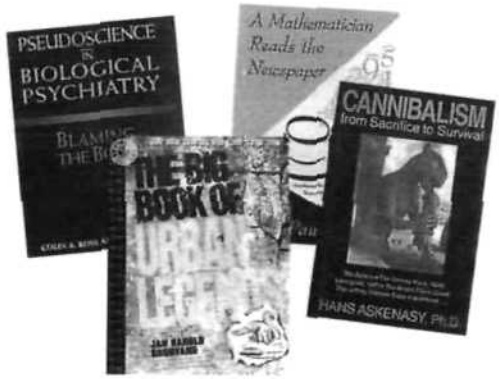

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Editor's Note

Roswell, Pseudoscience, and Beliefs and Expectations

We offer in this issue three timely, evaluative reports on the Roswell "crashed saucer" case, UFOlogy's most famous (and now perhaps most notorious) story. In his Special Report, Philip J. Klass reports on the recently issued General Accounting Office report that found no evidence for any such crashed saucer—although you didn't hear much about that conclusion. Klass, dean of the UFO skeptics, helps explain why in his discussion of the New Mexico congressman who requested that study. Two complementary columns, by C. Eugene Emery, Jr. and Joe Nickell, cast critical eyes on the widely watched Fox television network program "Alien Autopsy: Fact or Fiction?" aired August 28 and September 4. The Roswell case already had been badly tainted by the MJ-12 documents hoax of the late 1980s. Does the alleged "alien autopsy" carry Roswell hoaxing into the visual medium of film?

In "Why Creationists Don't Go to Psychic Fairs," University of Texas at Arlington social scientists John H. Taylor, Raymond A. Eve, and Francis B. Harrold use new survey data to show persuasively that there are at least two distinct—and mutually exclusive—groups of people prone to believe in pseudoscientific concepts. Creationists and believers in "fantastic science" could hardly be more different from each other. They are united only in their willingness to dismiss any scientific findings that contradict their beliefs. This report is a valuable attempt to understand the origins and internal logic of pseudoscientific belief systems—in this case two such systems.

University of Hertfordshire researchers Richard Wiseman, Matthew Smith, and Jeff Wiseman report on experiments—including several of their own—that vividly show the unreliability of eyewitness testimony in recounting allegedly "paranormal" happenings. In one new experiment, using a séance-type condition, 27 percent of participants reported movement of a slate, bell, book, or table—even though all had remained stationary. The various experimental studies show convincingly that the beliefs and expectations the observers bring with them to the experience strongly influence what they "observe."

• • •

This completes the sixth issue and first volume in our new, expanded, bimonthly format (after 18 years in a digest-size format). The positive feedback from readers has been overwhelming. Thank you. We're still fine-tuning our new look, so you may see some further changes in future issues. All for the better, we hope. Let us know.

News and Comment

UFOs Real? Government Covering Up? Survey Says 50 Percent Think So

Half of America's adults believe flying saucers could be real and that the federal government is covering up what it knows about alien beings. That was the finding in a survey of 1,006 adults conducted by Scripps-Howard News Service and Ohio University.

As part of a national survey conducted in Summer 1995, the news service and university asked: "Some Americans feel that flying saucers are real and that the federal government is hiding the truth about them from us. Do you think this is very likely, somewhat likely, or unlikely?"

Fifty percent of the sample answered very likely (19 percent) or somewhat likely (31 percent). Forty-three percent of the respondents said they believe this is unlikely. Seven percent of the respondents were uncertain. The poll's margin of error was 4 percent.

There wasn't a lot of variation among subgroups (see box).

Fifty-two percent of males and 48 percent of females answered very or somewhat likely.

Belief in the reality of flying saucers and a government coverup of them was higher among younger people, the less educated, nonchurchgoers, and nonwhites. Geographic distribution mattered little, but Midwesterners showed slightly less belief.

The only groups with less than 40 percent answering the question in the affirmative were those at least 55 years old, those with postgraduate education, and those who identified themselves as strong Republicans.

Thomas Hargrove, a Washington-based Scripps-Howard journalist who coauthored the survey, told the SKEPTICAL INQUIRER that the question was just one in a larger survey about distrust of government. "The whole point of the poll was to test, in hopefully unique

The Scripps-Howard News Service/Ohio University national survey on attitudes toward the federal government asked, "Some Americans feel that flying saucers are real and that the federal government is hiding the truth about them from us. Do you think this is very likely, somewhat likely or unlikely?"

Here is a breakdown by various groups in the percentage who answered "very likely" or "somewhat likely."

	Percent
Entire Sample	50
Male	52
Female	48
Years Old	
18-24	56
25-34	56
35-44	53
45-54	54
55-64	37
65 or more	34
Education	
High school graduate	55
Some college	55
College graduate	48
Postgraduate studies	39
Income	
Below $10,000	57
$10,000 to $25,000	53
$25,000 to $40,000	51
$40,000 to $60,000	45
Above $60,000	46
Attended church recently	45
Did not attended church recently	54
Northeast	54
South	49
Midwest	47
West	52
Major urban area	55
Small city	45
Suburb of city	51
Rural area	50
Strong Democrat	48
Leaning Democrat	55
Politically independent	53
Strong Republican	52
Leaning Republican	38
White	48
African-American	56
Hispanic	54
All other races	55

ways, the degree of anger toward the government these days," he said.

Hargrove said he and his colleagues were surprised at the large proportion of those who answered affirmatively to the question about flying saucers and a government coverup. This prompted them to release the results of that question separately from the others. "A shockingly large number believe in a government coverup," he said.

The poll came in a period marked by many much-publicized assertions and by news accounts of Air Force and General Accounting Office (GAO) investigations of the Roswell, New Mexico, "crashed saucer" case. The Air Force research attributed the Roswell incident to debris from the 1947 top secret Project Mogul (*SI*, January-February 1995 and July-August 1995). The GAO report, requested by New Mexico Representative Steve Schiff and made public July 28, 1995, by Schiff, said the investigation found only two previously reported government documents about the Roswell event. Neither supported a flying saucer scenario. (See Special Report, this issue.)

Hargrove's July 7, 1995, news article about the survey, written with Guido H. Stempel III, distinguished professor of journalism at Ohio University, said the survey shows that "the growing mistrust in government and Hollywood's routine television and film portrayal of space aliens have combined in a remarkable way." They point out that the notion that the government has clandestine knowledge about alien beings was a central theme in highly popular films such as *Close Encounters of the Third Kind, E.T.—The Extra-terrestrial,* and *Starman,* as well as in the popular television series "The X-Files."

The wording of the question may leave it open to the complaint that it might have been leading. Whether the question's inclusion in a larger survey about mistrust of government affected the answer isn't clear, but Hargrove said that the level of mistrust on this one answer stood out from the rest.

—*Kendrick Frazier*

John Mack: Off the Hook at Harvard, but with Something Akin to a Warning

Dr. John Mack apparently is off the hook at Harvard.

After a year-long investigation (*SI*, September-October 1995), the Ivy League university where Mack is a tenured professor of psychiatry has announced that he continues to be a member in good standing of the Harvard Faculty of Medicine.

John Mack, speaking at CSICOP's Seattle conference last year.

Harvard Medical School Dean Daniel C. Tosteson gave something akin to a warning to Mack, who is possibly the country's best-known and best-credentialed proponent of the idea that people who think they have been kidnapped by space aliens actually may have been abducted by creatures from another planet or another dimension.

In a news release issued August 3, 1995, Harvard said Tosteson "has urged Dr. Mack that, in his enthusiasm to care for and study this group of individuals, he should be careful not, in any way, to violate the high standards" of Harvard.

Harvard declined to say whether the special faculty committee, which reportedly met 25 times to discuss Mack's work, found any evidence that he had come close to violating Harvard standards.

The university, a private institution, refused to release the report of its probe, or to answer any questions raised by its statement.

A draft version of the report, released by one of Mack's lawyers, was critical of the psychiatrist, saying that it is irresponsible to give credence to the alien abduction theory until all other possibilities, including seizures, vivid dreams, and all other conditions had been ruled out.

According to this draft report, if Mack is going to claim there is physical evidence of alien kidnappings, "We believe that Dr. Mack has an obligation to document some of this claimed physical evidence."

Committee chairman Dr. Arnold Relman, former editor of the *New England Journal of Medicine,* told the Associated Press after the Harvard announcement that his group had made no attempt "to describe whether John Mack's astounding claims are true."

The issues in the Mack case had gone beyond space aliens. Even critics of his work had expressed concern that Harvard might be trying to limit Mack's freedom, a burning issue actively stoked by Mack's lawyers.

Harvard's statement reaffirms "Dr. Mack's academic freedom to study what he wishes and to state his opinions without impediment."

News of the investigation broke as Mack was promoting the paperback version of his book *Abduction: Human Encounters With Aliens.*

Here is the text of the statement by Harvard Medical School:

"During the past year, a committee of peers was appointed by the Dean of Harvard Medical School to review the clinical care and clinical investigation that Professor John Mack has carried out with persons who believe that they have been abducted by aliens. The review has been completed. Dean Tosteson has discussed the issues raised in the review with Dr. Mack. He has urged Dr. Mack that, in his enthusiasm to care for and study this group of individuals, he should be careful not, in any way, to violate the high standards for the conduct of clinical practice and clinical investigation that have been the hallmark of this Faculty. He also reaffirmed Dr. Mack's

academic freedom to study what he wishes and to state his opinions without impediment. Dr. Mack remains a member in good standing of the Harvard Faculty of Medicine. It is the School's long standing practice not to disclose the content or findings of such reviews. No further comment will be made."

—*C. Eugene Emery, Jr.*

Gene Emery is the science writer for the Providence Journal-Bulletin, *75 Fountain St., Providence, RI 02902.*

Shroudology and C-14 Dating: The Continuing Saga

In 1988 three laboratories—at Oxford, Zurich, and the University of Arizona—radiocarbon-dated the Shroud of Turin, and thus proved the so-called Holy Shroud of Christ a medieval fake (Damon, et al., *Nature,* 337:611-615, 1989). Since then, there have been such frequent attempts to discredit the mutually corroborative findings that skeptics and scientists have begun to refer to the latest apologetic as "the rationalization du jour."

The most recent notion was in a paper given at an American Society of Microbiology meeting and reported on in *Science News* (147: 336, 1995), "Microbes Muddle Shroud of Turin's Age." According to research by Stephen J. Mattingly and Leoncio A. Garza-Valdez of the University of Texas at San Antonio, microbes may have affected the radiocarbon results. The researchers reportedly discovered that small samples of shroud cloth were coated with microbe-synthesized "biogenic varnishes" that may be much newer than the shroud itself and thereby have contributed to a more recent radiocarbon date.

Asked to respond to the new claims, Professor Paul E. Damon, of the University of Arizona laboratory and lead author of the 1989 *Nature* report, told the SKEPTICAL INQUIRER: "We've dated a lot of linen—including many Coptic Christian samples—and have been in close agreement with the historic date, within the precision of the dating method." In addition, he called attention to the control samples (such as a swatch from Cleopatra's mummy cloth) that were dated at the same time as the shroud—all of which, he observed, "came out quite reasonably" in terms of radiocarbon dating.

Thus, while promising to replicate the experiments of Mattingly Garza-Valdez to assess the validity of their claims, Damon wondered why it is only the Turin cloth—among ancient textiles—whose date is appreciably affected by microbial contamination.

Unfortunately the *Science News* note gave the impression that new tests might—by yielding an earlier date—renew the shroud's claim to authenticity. However, that can never be: The dating applies only to the cloth, not the image, and forgers have often obtained old materials on which to produce their handiwork. Moreover, a wealth of additional evidence proves the shroud a forgery, including its lack of provenance, anatomical flaws in the image, "blood" composed of tempera paint, and a medieval bishop's report that the forger had been uncovered and had confessed.

—*Joe Nickell*

Joe Nickell is Senior Research Fellow at CSICOP and author of Inquest on the Shroud of Turin *(Prometheus 1983, 1987).*

Despite Tabloid Assertions, New Jersey 'Psychic' Strikes Out

A recent story in the *Weekly World News* (May 16, 1995) tells us that "super psychic" John Monti's 1990 prediction of a murder victim's burial site has finally proved to be correct, but police dispute the story.

The facts according to the tabloid article by Jack Alexander: In 1990 police asked Monti to help them locate the body of Donna Macho, a 19-year-old who disappeared in 1984. "Monti," the article says, "knew nothing about the case at the time and received only expenses for his psychic help."

Monti then "led police to Miss Macho's abandoned 1979 Chrysler, picked out a photo of a prime suspect, and told them where the victim was buried in a shallow grave."

But, the tabloid article continues, police did not dig where Monti told them to, and it was not until this year that a Boy Scout leader found Donna Macho's remains on a farm in Cranbury, New Jersey, "exactly where super psychic Monti predicted they were buried."

However, the facts of the story offered by police are different.

Harry Kleinkauf, Chief of Police of Cranbury Township, sent this writer photocopies of articles from the *Home News* and *Trentonian* newspapers; these confirm some of the tabloid story's statements. Donna Macho did disappear in 1984 (she was last seen Feb. 26), and her skeletal remains were found on April 1, 1995, by a Boy Scout troop leader on a farm in Cranbury.

Both the *Home News* and *Trentonian* articles agree that Macho's car was found, not in 1990 by Monti, but in 1984. The car was found a mere four hours after the victim was last seen, according to the *Trentonian.*

Neither of these New Jersey news articles mentions Monti. The April 4, 1995, *Home News* story tells us, however, that "Nutley [N.J.] psychic Dorothy Allison" told police in 1989 where Donna Macho's body was located. (Interested readers should consult Joe Nickell's *Psychic Sleuths* [Prometheus Books, 1994] for more stories about Monti and Allison.)

Newspaper accounts contradict the *Weekly World News* article on basic points: Monti did not, apparently, lead police to the missing girl's car, and the car was in fact found in 1984, a time when Monti (according to the *Weekly World News* story) "knew nothing about the case." But it gets worse.

When the East Windsor Township (N.J.) police department (the department conducting the investigation into the disappearance) was contacted by this writer for information about the case, Police Chief Barry G. Barlow replied in a letter with what he called

"the actual facts of the matter."

Barlow said Monti was never contacted by the East Windsor police department, but was, however, contacted by a reporter from the *Trentonian*. (If this is the case, then we must wonder who, exactly, paid Monti for his "psychic help.")

Police found the girl's car. "Mr. Monti had *nothing* to do with it," said Barlow.

Regarding the most startling claims—that Monti "pinpointed" the area where the body was eventually found, and that Monti actually visited the site in 1990—Barlow has this to say: "Mr. Monti was *never* in the area where the body was found."

As with so many cases in which a claim is made that a "psychic" has assisted police in investigating a case, it seems that a little investigation of our own has turned up a mystery: How do "psychics" continue to receive publicity and public acceptance when the simplest aspects of their claims prove to be false?

—*David Pitt*

David Pitt is a writer in Halifax, Nova Scotia, Canada.

Getting Blood from a Stone

In the first few months of this year, Italy has been inundated with peculiar "miracles": A number of statues and icons of the Blessed Virgin Mary have reportedly wept tears of blood.

The actual flow of tears has never been recorded, although many believers, having seen icons just badly smeared with blood, swear that they have really witnessed them weeping. (The unreliability of witnesses in highly emotional situations is well known to psychology.)

Skeptics claim that a simpler explanation for these paranormal religious phenomena might be put down to "pious hoaxes," generated by an ill-intentioned faith, or even tricks (on April I a statue of Lenin was also found weeping!). Extensive media coverage of these stories very likely helped to spread the phenomenon.

People often asks chemists how they would make a statue weep, sometimes suggesting the possible use of deliquescent, hygroscopic or other chemical compounds. Thus, while realizing that much cruder methods can be used (and have indeed been used in the many documented cases of exposed trickery) to make a statue "weep," I wondered how I could produce a statue from which tears seemingly materialized out of the blue.

As a possible solution to this challenging task I propose a very simple technique that does not require holes near the eyelids, nor mechanical, electronic (or even chemical!) gimmicks. What is needed is a hollow statue made of a porous material, such as plaster or ceramic. The icon must be glazed or painted with some sort of impermeable coating. If the statue is then filled up with a liquid, the porous material will absorb it, but the glazing will stop it from flowing out.

If the glazing, however, is imperceptibly scratched away on or around the eyes, tear-like drops will leak out, as if materializing from thin air. If the cavity behind the eyes is small enough, once all the liquid has dripped out there are virtually no traces left in the icon.

When I put it to the test, this trick proved to be very satisfactory, baffling all onlookers. I would welcome other sensible suggestions for better effects.

I notice that, among these "weeping Madonna" miracles, the only one officially accepted by the Catholic Church happened in Siracusa (Sicily) back in 1953. This is the best documented case so far, with many eyewitnesses to an actual case of weeping, and even a couple of amateur films showing watery tears appearing on the face out of the blue.

A careful examination of an exact copy of one bas-relief (from the same manufacturer as the original), however, proved it to be made of glazed plaster, and to possess a cavity behind the face. . . .

—*L. Garlaschelli*

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Wiseman Succeeds Humphrey, Will Examine Parapsychology, Test *Psychic Claimants*

The new appointee to the Perrott-Warrick Scholarship in parapsychology, administered by Trinity College, *Cambridge University*, is psychologist Richard Wiseman. He succeeds Nicholas Humphrey, the first person in the post, whose three-year term ends in October.

Humphrey's appointment created quite a stir at the time because parapsychologists had wanted one of their own at the post, not a skeptic. (See "An Unbeliever Among the Faithful," *SI*, Winter 1993, vol. 17, no. 2).

Wiseman is Senior Research Fellow at the University of Hertfordshire and coauthor (with Robert L. Morris), of *Guidelines for Testing Psychic Claimants*, a practical 72-page guide published by University of Hertfordshire Press earlier this year.

Wiseman says he will use the grant to set up a new research unit at the University of Hertfordshire. He expects the unit to do critical evaluations of experimental parapsychology (such as the ganzfeld sensory-deprivation experiments, now the latest and best hope of psi supporters); carry out attempted replications of some psi experiments; work on the psychology of psychic fraud and the testing of psychic claimants; and do research on the psychology of belief in the paranormal.

He says he also hopes to build up considerable material on the skeptical approach to parapsychology and act as a resource center for other skeptics and researchers in the United Kingdom.

CSICOP Assists in Philadelphia TV Station's Psychic 'Sting'

A cleverly conceived and strikingly effective psychic exposé was conducted in May 1995 by Philadelphia WCAU-TV's Herb Denenberg.

A starting point for the investigation was Jody Himebaugh, whose

11-year-old son Mark disappeared November 25, 1991. Although Himebaugh conceded that the likelihood of his son being found alive was very small, more than 100 alleged psychics had contacted him with their visions. He said they typically saw a "dark car," "the number 5," or similar "clues" that were never any help. (*After* a case is finally resolved, the psychics typically *interpret* their vague pronouncements to fit the actual facts. This is called retrofitting. See my *Psychic Sleuths*, Prometheus Books, 1994.)

Prompted in part by the Himebaugh case, Denenberg first consulted with CSICOP investigators. Then he and other members of his Newscenter 10 unit went undercover to test the alleged powers of "so-called psychics," some of whom, the investigative segment announced, "prey on the parents of missing children."

As the focus of their test Denenberg's team utilized a 15-year-old named Kate. Although film clips showed her playing softball in her front yard, various tarot card readers and "psychic advisors"—as well as certain 900-number clairvoyants—were told that the schoolgirl had been missing since January.

In response, some psychics saw her experiencing "physical harm"; one collected a fee of $50 for seeing her "confined against her will"; another charged $180 to report that the girl had run away and was "probably pregnant"; and, while one psychic envisioned her only two miles from home, another saw her far away in Florida. Not one among the several psychics ever divined the truth about the teenager—that she was not missing—or about the true purpose of Channel 10's investigation.

When confronted with the evidence that their psychic powers were inoperative, the alleged clairvoyants chose not to appear on camera. However, a spokesman for "Miss Ruby, Psychic Reader and Advisor," conceded she should have foreseen the sting operation, and she refunded the TV station's money.

Denenberg's investigative report also featured Frank Friel, who has 30 years of experience in law enforcement. He stated that he had never had a psychic provide a valuable clue, and he criticized the alleged seers for their phony offerings, which he described as "catastrophic to the well-being" of the families concerned, and, indeed, "out-and-out fraud."

Himebaugh said psychics took an "emotional toll" on families. He said he had twice ended up in the hospital suffering from anxiety attacks brought on by psychics' false hopes.

Whether or not Denenberg's efforts are successful in retarding future psychic activities in the Philadelphia area, he and Channel 10 are to be commended for a fine piece of investigative reporting—one in which a paranormal claim again fails to withstand the light of scrutiny.

—Joe Nickell

Another Psychiatrist Pays for Planting False Memories

A psychiatrist was ordered in court to pay her patient $2.5 million for planting false memories in the St. Paul, Minnesota, patient's mind, according to a report by The Associated Press.

The fine is the largest ever imposed on a doctor accused of implanting false memories, attorneys said.

Vynette Hamanne, the patient, told a jury she believed she was the victim of bizarre childhood sexual abuse involving satanic rituals and that she had seen her grandmother stirring a cauldron of dead babies, but that it was not true. "I'm really glad it's done. We'll be glad to get on with the rest of our lives," Hamanne said of her successful legal action.

Hamanne, 42, is not the only patient who has taken the psychiatrist, Dr. Diane Humenansky, to court. The doctor is the defendant in at least five other civil lawsuits that allege she traumatized her patients by urging them to remember false memories of abuse.

A jury in California in 1994 awarded $500,000 to a winery executive who said his life was destroyed when therapists gave his adult daughter false memories that he raped her as a child.

Hamanne's attorneys said the verdict in her trial thoroughly discredits the repressed-memory theory, which says a person can endure repeated abuse and not remember it until years later.

"I think the effect is a stunning warning to therapists . . . and to insurance companies in that they had better start obeying the informed consent laws and stop using experimental treatments like recovered-memory treatments on patients without their permission," said attorney R. Christopher Barden. "This is a huge warning to them."

The Fowl Smell of Justice in Miami

Justice may be blind. But in Miami, justice may want to hold its nose as well.

Janitors at the Metro Justice Building must make daily patrols around the criminal courthouse looking for smelly remains of chickens, roosters, and goats left on the steps or near parts of the building by the families of defendants who are trying to use voodoo or other religious practices to influence a case.

According to a Knight-Ridder news service story by Manny Garcia, the courthouse's "voodoo squad" checks the grounds each morning, especially the northwest corner of the courthouse, which has been dubbed "Chicken Central" because "on most days the corner resembles a massacre at a chicken ranch.

"Sometimes we find one chicken. Sometimes we find three or four. It all depends on who is on trial," Garcia quoted one maintenance man.

Some Cuban, Haitian, and Afro-Cuban religions call for sacrifices of food and animals. They also advocate the use of a white, so-called "voodoo powder," which is sometimes sprinkled on the chair of the judge or prosecutor. When its found, court workers rush to vacuum it up. □

Fund for the Future

C S I C O P A T T H E C E N T E R F O R I N Q U I R Y

With the completion of its headquarters campus, The Committee for the Scientific Investigation of Claims of the Paranormal is poised for an explosion of growth. We appeal for your help in assuring adequate funding—now and in the future—for the bold initiatives that will shape the outreach of science and reason in the years to come.

To carry out its objectives in the second half of this decade, CSICOP has formulated specific program and project goals.

1) Critical Thinking / Science Education
The Committee proposes to develop new materials—ranging from publications to audio and video cassettes and instructional courseware—to disseminate broader and more accurate knowledge about scientific methods and to teach improved critical thinking skills.

2) Media Watch / Rapid Response
The Committee proposes to equip itself to be able to monitor major media on a continuing basis, and to be able to respond to claims quickly. This will *entail additional staffing for continuous media monitoring, establishment* of an e-mail network to permit rapid formulation of responses by qualified experts, and development of e-mail, FAX broadcast, and other capabilities to assure instantaneous dissemination of our statements to local, national, and world media.

In addition, the Committee plans to step up its production of audio and video materials through Inquiry Media Productions. Targets include sequels to the successful public education video Beyond Belief, talking books, a radio op-ed series, and a new public affairs series for public radio. Full implementation will require additional staffing and significant investments in production and distribution equipment.

3) The Institute for Inquiry
The Committee proposes to complete the development of its Institute for Inquiry adult education program. The Institute for Inquiry is already the nation's foremost provider of education on the subjects of skepticism, the scientific method, and the critical evaluation of paranormal and fringe science claims. Hundreds of persons have attended Institute for Inquiry courses at scores of locations.

4) The Library of Skepticism
With the establishment of the William and Mary Frantz Skeptics' Library in memory of Margaret Frantz at the Center for Inquiry, CSICOP has created a permanent repository to house and maintain the world's literature about the scientific analysis of paranormal claims—and to make it accessible to scholars and other qualified users.

CSICOP at the Center for Inquiry,
Box 703, Amherst, N.Y. 14226
(716) 636-1425

Opening Shots from the Center for Inquiry

A milestone in the 19-year history of the Committee for the Scientific Investigation of Claims of the Paranormal was the grand opening June 9, 1995, of the new Center for Inquiry building near the State University of New York at Buffalo campus in Amherst, New York. The Center for Inquiry—shared by the Council for Democratic and Secular Humanism—features a library complex for 50,000 volumes, offices, and meeting/seminar rooms. Many notable speakers offered congratulations to the organization for meeting this ambitious goal.

Author, entertainer, and media pioneer Steve Allen co-chaired the "Price of Reason" campaign and gave a special performance to celebrate the opening. He also delighted attendees with droll remarks after cutting the ribbon to open the new Center for Inquiry.

Nobel Laureate Herbert Hauptman lectured on "Defending Reason in an Irrational World."

Before the Center for Inquiry's dramatic scalloped windows, a capacity crowd hears *Time* Science Editor Emeritus Leon Jaroff extol the virtues of critical thinking.

Stan Lundine, former Lieutenant Governor of New York State under Mario Cuomo, praised the Center for Inquiry and defended government involvement in addressing social problems.

Center for Inquiry-West Opens in Los Angeles

July 7, 1995, marked yet another stage in the expansion of CSICOP's outreach. Entertainer Steve Allen joined CSICOP Chair Paul Kurtz, Executive Director Barry Karr, Senior Research Fellow Joe Nickell, and many others to dedicate CSICOP's new Los Angeles branch office, the Center for Inquiry-West.

CFI-West will serve as a regional office for the states of California, Oregon, Washington, and Nevada. Most important, it will offer new and more direct access to the nation's media centers in the Los Angeles area.

CFI-West is located in a small office suite in the Marina Del Rey district on the West Side of Los Angeles. CSICOP shares the facility with CODESH, the Council for Democratic and Secular Humanism. CFI-West will sponsor a series of lectures and seminars in the Southern California area, and invites West Coast skeptics to join as Friends of the Center for Inquiry-West. A move to more versatile quarters is expected in the near future.

CFI-West is located at 5521 Grosvenor Blvd., Los Angeles, CA 90036. Phone #: (310) 306-2847.

Waking Up from Freud's Theory of Dreams

MARTIN GARDNER

I have had a most rare vision. I have had a dream, past the wit of man to say what dream it was: man is but an ass, if he go about to expound this dream.

—Nick Bottom, a weaver,
in Shakespeare's
A Midsummer Night's Dream,
act 4, scene 1.

For several decades Sigmund Freud's reputation as a scientist has been steadily withering. So much so that *Time* (November 20, 1993) put Freud's face on its cover, his head depicted as crumbling, and asked: "Is Freud Dead?" Paul Gray's answer in his feature article was "Yes." Psychiatrists, philosophers, and critics now regard the "Vienna quack" (as writer Vladimir Nabokov called him) as a man of great literary talents, but essentially a pseudoscientist without the foggiest notion of how to confirm his conjectures.

Nowhere is this paradigm shift more evident than with respect to Freud's dream theory. Freud himself considered this his finest achievement. In the preface to the third edition of *The Interpretation of Dreams,* he wrote: "It contains, even according to my present-day judgment, the most valuable of all the discoveries it has been my good fortune to make. Insight such as this falls to one's lot but once in a lifetime."

In one of his lectures Freud called his dream theory "the royal road to a knowledge of the unconscious; it is the secret foundation of psychoanalysis." Shortly after his book on dreams was published, he wrote to his close friend Wilhelm Fliess, a bumbling ear, nose, and throat doctor and numerologist from Berlin, that maybe someday a marble tablet would be placed on his (Freud's) house to commemorate where he made his monumental dream discovery. [See *The Complete Letters of Sigmund Freud to Wilhelm Fliess, 1887-1904,* Harvard Press, 1985.]

Much earlier efforts had been made to unravel dreams. To the ancients, as to today's parapsychologists, dreams were often interpreted as precognitions of future events or clairvoyant visions of current, faraway events. Michel Montaigne (essayist, humanist, and skeptic), in one of his essays (Book 3, Chapter 13), wrote: "I believe it to be true that dreams are the true interpreters of our inclinations; but there is art required to sort and understand them."

Before 1900 the prevailing opinion among psychologists was that dreams are mostly random images as nonsensical as Alice's dreams of Wonderland. In Freud's words, they were thought to resemble the sounds of "unskilled fingers wandering over the keys of a piano."

However, Freud also believed that beneath what he called the *manifest* content of a dream—its seemingly absurd, disconnected images—lay a *latent* content that was a cleverly disguised expression of unconscious wishes. "We do literally deny," Freud wrote in his *General Introduction to Psychoanalysis,* "that anything in the dream is a matter of chance or of indifference."

Because most unconscious desires are shocking to the conscious mind, our brain contains something Freud called the "censor." To prevent us from awakening in horror or disgust over an explicit revelation of an unconscious wish, this "severe little manikin" distorts the dream by transforming our secret desires into harmless symbols that will not disturb our slumber. Occasionally, when the censor fails to do its job, the result may be an anxiety dream or nightmare so disturbing that it wakes us.

Freud of course could not deny that dream symbols reflect recent events we have experienced, or even conditions occurring while we sleep, such as unusual heat or cold, loud sounds, strong odors, a stomach ache, arthritic pains, and so on. If our bladder is too

full, we may dream of urinating—the censor's trick to keep us asleep. If hungry, we may dream of eating; if thirsty, of drinking. In such cases the manifest and latent contents of a dream become the same.

The psychoanalyst's task, helped by free-association tests and dialogue, is to uncover the secret content of a patient's dreams—an indispensible aid in determining the childhood sources of his or her neuroses.

The best introduction to Freud's dream symbolism is Lecture 10 of his *General Introduction to Psychoanalysis.* It must be read to be appreciated.

Male sex symbols are any items that resemble a penis: sticks, umbrellas, poles, trees, knives, daggers, lances, sabres, guns, pistols, mushrooms, keys, pencils, pens, hammers, screwdrivers. Freud doesn't mention bananas, hot dogs, or cigars, but their phallic symbolism is obvious. (Freud is alleged to have once said—does any reader know where?—that in some dreams a cigar may be just a cigar.) Fish and reptiles, especially snakes, are male symbols. So are swans, with their long necks. Neckties that "hang down" and feathers that "stand up" are other male symbols. In *The Interpretation of Dreams,* Freud reports a patient's dream about a hat with a slanted feather. It symbolized the male dreamer's impotence.

Hats and coats can be either male or female symbols. This may be "difficult to divine," Freud writes, "but their symbolism is quite unquestionable." Hats are male symbols because the head goes into them, and coats, because arms go into sleeves. The hats and sleeves also serve as female symbols.

Objects from which water emerges signify male ejaculation: faucets, watering cans, springs, fountains. Anything that flies through the air is symbolic of erection: balloons, airplanes, zeppelins. Common dreams of flying like Peter Pan are dreams of erection. This, Freud tells us, has been proved true "beyond doubt." How is it, then, that women also dream of flying? Freud gives two reasons: They have "penis envy"—a desire to be a man "whether conscious of it or not," and a woman's clitoris also becomes erect when sexually stimulated.

Female symbols are hollow or they enclose: pits, caves, jars, bottles, boxes, chests, cupboards, shoes (including horseshoes!), slippers, drawers, pockets, jewel cases, ships, stoves, houses, rooms, churches, doors, gates, chimneys, keyholes.

More mysterious female symbols include wood, paper, tables, books, and flowers. If a man dreams of taking flowers from a woman it symbolizes his wish to deflower her. Such puns often play symbolic roles in dreams. A woman dreams of violets. In *The*

Interpretation of Dreams Freud associates this with the French "viol," meaning rape. Carnations are linked to "carnal." Lillies of the Valley are double female symbols because they combine blossoms with valleys.

Snails and mussels, Freud tells us, are "unmistakable female symbols." So are peaches, apples, melons—any kind of fruit that resembles a breast. Female pubic hair is represented in dreams by woods and thickets. When women dream of landscapes, says Freud, the scene swarms with sex symbols: rocks and trees for men, woods for women, and water for both sexes.

Buildings can be either male or female symbols. If outside walls are smooth, the building represents a man with his flat chest. "When there are protuberances such as ledges and balconies which can be caught hold of," Freud writes, the building signifies a woman with projecting breasts.

Both Freud and Carl Jung were fascinated by number symbolism, especially Jung, who carried numerology to preposterous heights. To give only one example, the number 3 signifies for Freud the male genitalia because the figure "3" combines a penis with two testicles. In dreams this is often disguised as a three-leaf clover or the French fleur-de-lis.

A desire to masturbate is represented in dreams by any kind of play, especially piano playing. (Freud would have had a field day with Adelaide Proctor's popular poem and song, "The Lost Chord.") Dreams of pulling off branches, or having one's teeth yanked, symbolize castration as punishment for masturbation.

What about the sex act? For Freud, dreams disguise this as dancing, riding, climbing, or experiencing any kind of violence, such as being run over. Climbing stairways, ladders, or mountains Freud considers "indubitably symbolic of sexual intercourse." He calls attention to the rhythmic aspect of climbing and to its escalating excitement that puts one out of breath.

Throughout his books Freud provides hundreds of examples of dream analysis, often of his own dreams, although he seldom reveals himself as the dreamer. At the time he invented his dream theory, he was a heavy user of cocaine. The drug suppresses dreaming for a time, but there is always a rebound when dreams become more frequent and unusually vivid. Freud carefully wrote down these dreams and did his best to interpret them.

Here is a typical example of how Freud interprets a patient's dream in Lecture 12 of his *General Introduction to Psychoanalysis.* A woman dreams that her head bleeds after banging it against a chandelier. The chandelier is a penis symbol. Her head represents the lower part of her body because as a child her mother once told her that if she didn't behave she would become as bald as her buttocks. "The real subject of the dream then is a bleeding at the lower end of the

The following excerpt of a song by Franklin P. Adams was published in his newspaper column in the 1920s and later set to music by Brian Hooker:

A debutante was sitting in the parlor of her flat;
A brave young man upon her he was calling.
They talked about the weather and the war and things like that,
As couples will, for conversation stalling.
The talk it all went merry quite until the young man said:
"Last night I dreamed that you had gone away—"
The debutante put up her hand and stopped the young man dead,
And softly unto him these words did say:

CHORUS

"Don't tell me what you dreamt last night, I must not hear you speak!
For it might bring a crimson blush unto my maiden cheek.
If I were you, that subject is a thing that I'd avoid—
Don't tell me what you dreamt last night, for I've been reading Freud."

A loving husband sat one morn at breakfast with his wife,
And said to her: "Oh, Minnie, pass the cream.
Last night I dreamed that Fritzi Scheff pursued me with a knife,
And though I tried, I couldn't even scream."
His little wife put up her hand, and said: "Oh, pray desist!
To tell the rest of it might break my heart.
That dream, I fear, is plain to any psychoanalyst."
And then she softly wept, and said, in part:

"Don't tell me what you dreamt last night,
I must not hear you speak!" etc.

(Madame Fritzi Scheff was a beautiful Viennese prima donna who became famous in the United States for her opera roles. The second of her three husbands was the American novelist John Fox, Jr.)

body, caused by contact with the penis."

Another dream from the same lecture: A woman dreams of seeing a hole in the ground where a tree has been uprooted. Freud has "no doubt" that this dream expresses her infantile belief that she once had a penis, but it had been removed.

Freud theorized that dreams are often what he called "counterwish dreams." These are unpleasant dreams that express fears rather than wishes. For example, a lawyer dreams of losing a case he wants to win, or a woman dreams of being unable to host a banquet she wants to host. In *The Interpretation of Dreams* Freud recalls the "cleverest" of all his dreamers. This woman strongly wanted to avoid a vacation with her mother-in-law, yet she dreamed of just such a vacation.

One might have expected Freud simply to admit that dreams can reflect fears as well as desires, but no—he struggled all his life to find ways of seeing unpleasant dreams as secret wish fulfillments. He was aware that such counterwish dreams presented serious obstacles to his theory. Here is how he interpreted the unpleasant dream about the vacation with a mother-in-law. The dreamer was in a stage of intense resistance to her analysis. Eager to prove Freud wrong, her unconscious concocted a dream that contradicted his theory! Indeed, Freud found such dreams common among rebellious patients who knew something about psychoanalysis. Of course there also are "obliging dreams" by knowledgeable patients who want to *please* their analyst.

How about soldiers who in dreams relive horrible traumas they would prefer to forget? These, too, Freud explained as wishes. In such dreams of terror the sleeper is a masochist who wants to continue suffering! As Freud wrote, "Even dreams with a painful content are seen to be wish fulfillments."

Although Freud believed that "an overwhelming majority of symbols in dreams are sexual," he recognized hundreds of nonsexual symbols. Parents are represented by kings, queens, and other authority figures. Brothers and sisters are symbolized by little animals and vermin. Birth is "almost invariably" represented by water, a symbol of the amniotic fluid. Long journeys signify dying.

In the 1920s and 1930s, when Freud was most fashionable in the United States, his devotees had great fun searching for sex symbols in their dreams, and in art and literature. Today's psychiatrists, aside from elderly analysts who still view Freud's writings as sacred, regard Freud's theory of dreams not as his greatest achievement but as his greatest failure. The symbolism is so flexible that a clever analyst, on the basis of data gained from couch dialogue and free-association tests, can interpret any dream to fit any conjecture. A good example of such elasticity was Freud's belief that any dream can stand for its direct opposite "just as easily as for itself." A male symbol can denote a female, and vice versa! Yet Freud, in his vast hubris, was so blind to the absurdities of his dream theory that he expressed amazement that his theory met such "strenuous opposition amongst educated persons."

Sir Peter Medawar, the distinguished British biologist, writer, and Nobel Prize winner, reviewing a book on psychiatry in the *New York Review of Books* (January 23, 1975) concluded:

> Psychoanalysts will continue to perpetrate the most ghastly blunders just so long as they persevere in their

Freud continued on page 56

Bra Hazards, Carpet Circles, Lunar Aliens, and Adam's Animals

ROBERT SHEAFFER

Researchers looking into the causes of breast cancer, a disease tragically common among women in Western countries, may have overlooked the most obvious cause of all: the wearing of bras. So says the husband-and-wife team of Sydney Ross Singer and Soma Grismaijer, whose 1995 book *Dressed to Kill: The Link Between Breast Cancer and Bras* (Avery Publishing) is based on their own personal experiences and research. (Scientific studies suggest that the difference in diet between North American and Japanese women accounts for the much-higher breast cancer rates in the former group.) As described in the August 1995 *New Age Journal*, the book authors' theory is that "when the breast is chronically restricted by a bra, the lymph system that surrounds it may become blocked—preventing it from carrying out its function of removing toxins from the area, and thus making cancer more likely." Surveying almost 5,000 women in major cities in the United States, they claim to have found that women who wore their bras so tightly as to cause red marks on their skin, or wore bras more than 12 hours a day, were much more likely to have contracted breast cancer.

Interviewed by the San Jose (California) *Metro* (July 6, 1995), Singer, a medical anthropologist, mused on the cultural significance of bras in Western society: "They're really invested in wearing bras, women identify with their breasts so much. Can they stop wearing bras if it meant saving their lives?"

A spokesperson for the National Cancer Institute responds: "We look forward to the publication of the Bra and Breast Cancer Study in a peer-reviewed scientific journal, where the study results can be properly evaluated."

Another leading authority on cancer who recently made her findings known was actress Sharon Stone. She gave a talk to the National Press Club in Washington, titled "A Holistic Approach to the War on Cancer." She explained how she had cured herself of lymphoma, a particularly virulent type of cancer, by "a lot of positive thinking and a lot of holistic healing," and most especially by staying away from coffee. "When I stopped drinking coffee, ten days later, I had no tumors in any of my lymph glands," the actress reported. However, Richard Carlson, the president and CEO of the Corporation for Public Broadcasting, who was listening to her talk with great incredulity, writes (*The Washington Post*, July 2, 1995) that Stone's publicist later admitted that the actress never had cancer, which makes one wonder why in the world Stone was giving this talk in the first place, and why she was given this forum.

• • •

The Dean of UFO skeptics, Philip J. Klass, reports in his *Skeptics UFO Newsletter* that Joe Barron, MUFON's (Mutual UFO Network) chief investigator for the UFO "hot zones" of Gulf Breeze, and Pensacola, Florida, allegedly has discovered a new UFO landing strip: the carpet inside his house. Barron reports discovering two mysterious 7-inch-diameter indentations in his carpet (Is this the first report of carpet circles?) after having heard a very loud noise. Three more identical rings were found in another room. Barron concluded that "as a result of the loud noise, and finding the rings, contact was established with me by some entity which, at this moment, is a mystery to me."

Klass also reports that UFO lecturer Robert Dean told an enthusiastic audience at last year's UFO conference in Pensacola, Florida, that "there are aliens mining the moon. They have bases on the moon." Not one, but four different alien species are operating on our moon, he says, and one species looks exactly like earthlings. "All of our astro-

nauts know it, and many of them are having nervous breakdowns," according to Dean. In fact, Dean says, the reason that NASA ended its program of manned lunar flight is that "we were told to get off the moon and stay off."

• • •

Meanwhile, the Institute for Creation Research (ICR) in El Cahon, California, continues its vigorous research into the mysteries of what it calls "creation science." The July 1995 issue of its publication *Acts and Facts* sets forth the findings of Jack Cuozzo, "an orthodontist who has become an expert in the dental, facial, and cranial characteristics of Neanderthal man." Traveling all around the world to study Neanderthal skulls, Cuozzo claims to have found much evidence that evolutionist scholars and museum curators have manipulated Neanderthal remains to make them appear far more apelike than they actually are. For example, Cuozzo charges that evolutionists allegedly physically manipulate and depict these skulls with their jaws dislocated and the teeth pushed forward to make them look apelike, when, according to Cuozzo, in reality the Neanderthal man's skull differs little from yours or mine. Explains the publication: "ICR has long held that these people [Neanderthals] were a language group who migrated away from the Tower of Babel. They found themselves in harsh Ice Age circumstances and some were forced to live in caves. Poor nutrition and disease, as well as inbreeding, resulted in characteristics we now call Neanderthaloid." However, these hardships do not seem to have taken too heavy a toll on the group. Says ICR: "Many of these features, heavy brow ridge, teeth crowding forward, deterioration of the chin, excessive wear on the teeth, are features of very old individuals. And why not? The Bible says that in the days soon after Noah's Flood, people still lived several hundred years. Cuozzo postulates that many of the classic Neanderthal skeletons were the remains of very old men and women." It is not known whether the practice of poor nutrition, inbreeding, and living in caves might allow modern humans to live as long.

In that same issue of *Acts and Facts,* William J. Spear, Jr. addresses the problem "Could Adam Really Name All Those Animals?" Some readers may not have realized that this presents a problem, but the ever-vigilant scholars of creation science are constantly testing and refining their hypotheses. According to Genesis 2:19-21, God paraded all of the earth's animals and birds before Adam, who gave names to each kind. Adam, however, at this time was only a few hours old (the "days" of creation being interpreted literally by the ICR as 24-hour days), and hence he may have been barely able to walk and talk. He needed not to merely name all of the various species (at least those visible to the naked eye) in one single day, but he also had to set aside some time to be anesthetized for the extraction of his rib so that Eve could be created. In that day there were tens of thousands of species of animals to be named, with only 86,400 seconds to do it, and the number of now-extinct species living before the Flood must have been truly overwhelming. Adam would have been naming not only mammals and birds, but all of the dinosaurs as well, who were created at the same time as the other animals. Clearly, the task borders on the impossible, even for an unfallen man.

One theory of Adam's success in naming animal species is that Adam was created, according to Spear, "preinformed or preprogrammed with knowledge essential not only to his own survival, but also to carrying out his Creator's multiple purposes." However, this hypothesis seems to take away from Adam's free will (and while Spear does not mention it, given that Adam later sinned, it does not seem a good idea to implicate the Creator too strongly as the author of Adam's thoughts). Another theory, said Spear, is that, since "humans today utilize only 10-20 percent of our brain's capacity, Adam may have been able to utilize what he did know much more rapidly and with greater acuity than we can." That is, Adam's brain was operating at much closer to 100 percent. However, Spear's preferred theory is that God may have used a sort of "virtual reality" (VR) to speed up the process, since this unfallen man had an untarnished and direct mental perception of the deity. So God may have used the divinity-to-humanity communication link that has since been nearly severed to present speeded-up images in Adam's mind of animals parading before him, waiting to be named. This would seem logical, since a tremendous amount of precious time would otherwise be wasted waiting for snails, slugs, and tortoises to slowly go lumbering past. Spear concludes: "Because Adam named the animals before the Fall, his recollection was crystal clear, accurate, and voluminous. It may have even been like VR in the sense that Adam could see, smell, feel, and hear the creatures within his memory. At any rate, it may have felt as if it were immediate knowledge rather than knowledge mediated by God at Creation. Adam's memory would be able to tell no difference." □

"Dean told an enthusiastic audience . . . that 'there are aliens mining the moon. They have bases on the moon.' Not one, but four different alien species are operating on our moon, he says."

Robert Sheaffer works in the computer industry in the Silicon Valley in California.

'Alien Autopsy' Show-and-Tell: Long on Tell, Short on Show

C. EUGENE EMERY, JR.

There's nothing more maddening than having someone invite you to make up your own mind about a controversy, only to have them refuse to give you the tools to do it.

That's precisely what the Fox television network did August 28 and September 4, 1995, when it presented a one-hour special "Alien Autopsy: Fact or Fiction?" that was billed as the network premiere of a 17-minute film purporting to be the autopsy of a space creature found near Roswell, New Mexico, in 1947. [See also the *SI* Special Report on Roswell by Philip J. Klass in this issue, p. 20 and Joe Nickell's column on p. 17.]

Instead of simply showing the 17 minutes, viewers got to see maybe three, four, or five minutes of footage chopped up into MTV-sized snippets that were repeated throughout the hour.

Instead of a tough skeptical analysis of a film that has been kept tightly under wraps by its owner, executive producer Robert Kiviat—whose résumé includes being a coordinating producer on Fox's pseudoscience newsmagazine program "Encounters"—"Alien Autopsy" tended to showcase interviews from people who seemed convinced that the footage was either real, or a complicated hoax that would have been extremely difficult to pull off.

"Alien Autopsy" was far from one-sided. Kiviat repeatedly had the host, "Star Trek" actor Jonathan Frakes, note that the movie could be a hoax, and Kiviat addressed some key criticisms. But other important criticisms were muted, ignored, taken out of context, or simply brushed aside.

It's understandable that some people would be impressed by the film. The snippets the producers chose to air looked convincing in many ways. Scalpels seemed to cut flesh. A skin flap from the skull seemed to be pulled over the face. Dark innards were removed from the brain area and the body cavity, and placed into pans. The tools and equipment seemed to be from the right era.

Yet when it comes to exposing a clever fraud, the devil is in the details.

By failing to show the entire film, one was left to wonder whether Fox was leaving out the portions that might have flagged the movie as bogus.

"Alien Autopsy" comes at a difficult time for UFO enthusiasts. Today's cutting-edge UFO tales have become so extraordinary, they're often met with derision, even by people in the increasingly sensationalist media.

That's why the focus seems to have shifted to Roswell, where the details are still intriguing enough to fire the imagination, and the facts and recollections have been polished bright by the passage of time. With its simple tale of a crashed saucer, a few space aliens, and a government cover-up, the Roswell story seems far more plausible (relatively speaking) than today's tales of aliens passing through walls, millions of Americans being abducted by sex-obsessed space creatures, and extraterrestrials who create alien-human babies.

UFO believers thought they had the Roswell affair pretty well figured out. "Alien Autopsy" has shaken things up because the images in the film don't always conform to the picture the believers have painstakingly constructed over the years. The creature on the autopsy table is tall, its eyes are too small, it has too many fingers and toes, and it looks too humanlike, complete with humanlike ears and toenails.

Some enthusiasts had expressed the fear that "Alien Autopsy" would discredit some of the work that has gone into uncovering the truth at Roswell. Such fears may be justified. In the media, it's the images, not facts, that shape public attitudes and debates these days. Long after people have forgotten the details of a Roswell book or article, they're going to remember the video of this six-fingered "alien" undergoing an "autopsy."

The film snippets that were shown

From the film

raised all kinds of questions, and provided few answers. Some examples:

• One small part of the film shows someone making a cut in the skin along the neck. Did the full-length film include the showing of any dissection of the cut area? Was this cutting of skin simply done for effect, possibly with a trick knife that makes a glistening mark on the body that appears to be the blood from an incision?

• One section of the film shows an intact body (except for a large leg wound). Another shows the thorax and abdomen cut open. Were there any steps in between, or did possible hoaxers making the film simply cut open a latex dummy, dump animal guts inside, and pretend to take them out?

• There were film clips of organs, such as the brain, being removed. But organs can't be pulled from a body like pieces in a jigsaw puzzle. They're held in position by sometimes-tough connective tissue that must first be cut away. The film snippets on "Alien Autopsy" showed no evidence of that type of dissection. That flaw—if it is a flaw—was most obvious when the doctor plucked the dark covering off the eye. Unless these were simply extraterrestrial contact lenses, a piece of the eye isn't going to come away that easily without some connective tissue being sliced first.

• Where was everybody? How many people would turn down the chance to watch the historic autopsy of a creature from another world? Yet there were only two people in this room, in addition to the cameraman.

• Why did the person watching from behind the glass partition, and not in the room, need to be suited up?

• For such an extraordinary autopsy, why did there seem to be so little effort to document it? There was no attempt to weigh or label the specimens, and there were just a few shots of someone putting data on a single sheet of paper.

• Why was the supposedly experienced cameraman—who also claims to have been present when three alien creatures were found—trying to take close-ups that invariably made the film go out of focus? Good photographers know when they're getting too close to their subject and need to switch to a lens with a more appropriate focal length.

The fact is, an autopsy on a creature this extraordinary wouldn't be done the way this one was. The being would have been turned over so the back could be examined (in fact, the "doctors" seemed reluctant to move the body much at all). The skin would have been carefully stripped away to examine the pattern of the musculature. The origin and insertion of individual muscles would have been documented. Samples would have been taken, weighed, recorded and photographed. Only then would the people behind the protective hoods have gone deeper into the gut, repeating the documentation process.

When critics have questioned the quick removal of the black sheath on the eyes, the argument has been made that this was the third or fourth alien autopsied, so the procedure was becoming easier. The argument doesn't wash. Unless this was one of scores of alien bodies, researchers would want to handle each case with excruciating care so they could compare and contrast the individuals.

Unfortunately, the people who were skeptical of the film—ironically, including people prominent in the UFO movement—were given little time and almost no opportunity to explain their skepticism, making them appear to be little more than debunkers. Kent Jeffrey, who argued months earlier that the film is a hoax, only got to predict that it will probably eventually be exposed as a fraud. The criticisms of one Hollywood filmmaker, who thought the movie was bogus, were quickly countered by a cameraman from the era who said it wasn't surprising that this autopsy cameraman would allow his view to be blocked or parts of the movie to be out of focus.

Then there were things the show didn't tell viewers.

"Alien Autopsy" quoted Laurence Cate of Kodak, who said the markings on the film indicate it was manufactured in 1927, 1947 or 1967. The program didn't make it clear that Cate is not an expert in authentication, according to the *Sunday Times* of London.

Paolo Cherchi Usai, senior curator at George Eastman House, a photography museum, based his observation that the film would be difficult to fabricate on seeing the 17 minutes of film

Aliens continued on page 55

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'Alien Autopsy' Hoax

JOE NICKELL

It keeps going and going and. . . . The Roswell crashed-saucer myth has been given renewed impetus by a controversial television program "Alien Autopsy: Fact or Fiction?" that purports to depict the autopsy of a flying saucer occupant. The "documentary," promoted by a British marketing agency that formerly handled Walt Disney products, was aired August 28, and September 4, 1995, on the Fox television network. Skeptics, as well as many UFOlogists, quickly branded the film used in the program a hoax.

"The Roswell Incident," as it is known, is described in several controversial books, including one of that title by Charles Berlitz and William L. Moore. Reportedly, in early July 1947, a flying saucer crashed on the ranch property of William Brazel near Roswell, New Mexico, and was subsequently retrieved by the United States government (Berlitz and Moore 1980). Over the years, numerous rumors, urban legends, and outright hoaxes have claimed that saucer wreckage and the remains of its humanoid occupants were stored at a secret facility—e.g., a (nonexistent) "Hangar 18" at Wright Patterson Air Force Base—and that the small corpses were autopsied at that or another site (Berlitz and Moore 1980; Stringfield 1977). [See the *SI* Special Report on Roswell by Philip J. Klass in this issue.]

UFO hoaxes, both directly and indirectly related to Roswell, have since proliferated. For example, a 1949 science fiction movie, *The Flying Saucer,* produced by Mikel Conrad, purported to contain scenes of a captured spacecraft; an actor hired by Conrad actually posed as an FBI agent and swore the claim was true. In 1950, writer Frank Scully reported in his book *Behind the Flying Saucers* that the United States government had in its possession no fewer than three Venusian spaceships, together with the bodies of their humanoid occupants. Scully, who was also a *Variety* magazine columnist, was fed the story by two confidence men who had hoped to sell a petroleum-locating device allegedly based on alien technology. Other crash-retrieval stories followed, as did various photographs of space aliens living and dead: One gruesome photo portrayed the pilot of a small plane, his aviator's glasses still visible in the picture (Clark 1993).

Among recent Roswell hoaxes was the MJ-12 fiasco, in which supposed top secret government documents—including an alleged briefing paper for President Eisenhower and an executive order from President Truman—corroborated the Roswell crash. Unfortunately, document experts readily exposed the papers as inept forgeries (Nickell and Fischer 1990).

Sooner or later, a Roswell "alien autopsy" film was bound to turn up. That predictability, together with a lack of established historical record for the bizarre film, is indicative of a hoax. So is the anonymity of the cameraman. But the strongest argument against authenticity stems from what really crashed at Roswell in 1947. According to recently released Air Force files, the wreckage actually came from a balloon-borne array of radar reflectors and monitoring equipment launched as part of the secret Project Mogul and intended to monitor acoustic emissions from anticipated Soviet nuclear tests. In fact, materials from the device match contemporary descriptions of the debris (foiled paper, sticks, and tape) given by rancher Brazel's children and others (Berlitz and Moore 1980; Thomas 1995).

Interestingly, the film failed to agree with earlier purported eyewitness testimony about the alleged autopsy. For example, multiple medical informants described the Roswell creatures as lacking ears and having only four fingers with no thumb (Berlitz and Moore 1980), whereas the autopsy film depicts a creature with small ears and five fingers in addition to a thumb. Ergo, either the previous informants are hoaxers, or the film is a hoax, or both.

Although the film was supposedly authenticated by Kodak, only the

From the film

leader tape and a single frame were submitted for examination, not the entire footage. In fact, a Kodak spokesman told the *Sunday Times* of London: "There is no way I could authenticate this. I saw an image on the print. Sure it could be old film, but it doesn't mean it is what the aliens were filmed on."

Various objections to the film's authenticity came from journalists, UFO researchers, and scientists who viewed the film. They noted that it bore a bogus, non-military codemark ("Restricted access, AO1 classification") that disappeared after it was criticized; that the anonymous photographer's alleged military status had not been verified; and that the injuries sustained by the extraterrestrial were inconsistent with an air crash. On the basis of such objections, an article in the *Sunday Times* of London advised: "RELAX. The little green men have not landed. A much-hyped film purporting to prove that aliens had arrived on earth is a hoax" (Chittenden 1995).

Similar opinions on the film came even from prominent Roswell-crash partisans: Kent Jeffrey, an associate of the Center for UFO Studies and author of the "Roswell Declaration" (a call for an executive order to declassify any United States government information on UFOs and alien intelligence) stated "up front and unequivocally there is no (zero!!!) doubt in my mind that this film is a fraud" (1995). Even arch Roswell promoter Stanton T. Friedman said: "I saw nothing to indicate the footage came from the Roswell incident, or any other UFO incident for that matter" ("Alien or Fake?" 1995).

Still other critics found many inconsistencies and suspicious elements in the alleged autopsy. For example, in one scene the "doctors" wore white, hooded anti-contamination suits that could have been neither for protection from radiation (elsewhere the personnel are examining an alien body without such suits), nor for protection from the odor of decay nor from unknown bacteria or viruses (either would have required some type of breathing apparatus). Thus it appears that the outfits served no purpose except to conceal the "doctors'" identities.

American pathologists offered still more negative observations. Cyril Wecht, former president of the National Association of Forensic Pathologists, seemed credulous but described the viscera in terms that might apply to supermarket meat scraps and sponges: "I cannot relate these structures to abdominal contexts." Again, he said about contents of the cranial area being removed: "This is a structure that must be the brain, if it is a human being. It looks like no brain that I have ever seen, whether it is a brain filled with a tumor, a brain that has been radiated, a brain that has been traumatized and is hemorragic. . . ." (Wecht 1995). Much more critical was the assessment of nationally known pathologist Dominick Demaio who described the autopsy on television's "American Journal" (1995): "I would say it's a lot of bull."

Houston pathologist Ed Uthman (1995) was also bothered by the unrealistic viscera, stating: "The most implausible thing of all is that the 'alien' just had amorphous lumps of tissue in 'her' body cavities. I cannot fathom that an alien who had external organs so much like ours could not have some sort of definitive structural organs internally." As well, "the prosectors did not make an attempt to arrange the organs for demonstration for the camera." Uthman also observed that there was no body block, a basic piece of equipment used to prop up the trunk for examination and the head for brain removal. He also pointed out that "the prosector used scissors like a tailor, not like a pathologist or surgeon" (pathologists and surgeons place the middle or ring finger in the bottom scissors hole and use the forefinger to steady the scissors near the blades). Uthman further noted that "the initial cuts in the skin were made a little too Hollywood-like, too gingerly, like operating on a living patient" whereas autopsy incisions are made faster and deeper. Uthman faulted the film for lacking what he aptly termed "technical verisimilitude."

The degree of realism in the film has been debated, even by those who believe the film is a hoax. Some, like Kent Jeffrey (1995), thought the autopsy was done on a specially altered human corpse. On the other hand, many—including movie special effects experts—believed a dummy had been used. One suspicious point in that regard was that significant close-up views of the creature's internal organs were consistently out of focus ("Alien

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or Fake?" 1995).

"American Journal" (1995) also featured a special effects expert who doubted the film's authenticity and demonstrated how the autopsy "incisions"—which left a line of "blood" as the scalpel was drawn across the alien's skin—could easily have been faked. (The secret went unexplained but probably consisted of a tube fastened to the far side of the blade.)

In contrast to the somewhat credulous response of a Hollywood special effects filmmaker on the Fox program, British expert Cliff Wallace of Creature Effects provided the following assessment:

> None of us were of the opinion that we were watching a real alien autopsy, or an autopsy on a mutated human which has also been suggested. We all agreed that what we were seeing was a very good fake body, a large proportion of which had been based on a lifecast. Although the nature of the film obscured many of the things we had hoped to see, we felt that the general posture and weighting of the corpse was incorrect for a body in a prone position and had more in common with a cast that had been taken in an upright position.
>
> We did notice evidence of a possible molding seam line down an arm in one segment of the film but were generally surprised that there was little other evidence of seaming which suggests a high degree of workmanship.
>
> We felt that the filming was done in such a way as to obscure details rather than highlight them and that many of the parts of the autopsy that would have been difficult to fake, for example the folding back of the chest flaps, were avoided, as was anything but the most cursory of limb movement. We were also pretty unconvinced by the lone removal sequence. In our opinion the insides of the creature did not bear much relation to the exterior where muscle and bone shapes can be easily discerned. We all agreed that the filming of the sequence would require either the use of two separate bodies, one with chest open, one with chest closed, or significant redressing of one mortal.

From the film

Either way the processes involved are fairly complicated and require a high level of specialized knowledge.

Another expert, Trey Stokes—a Hollywood special effects "motion designer" whose film credits include *The Abyss, The Blob, Robocop Two, Batman Returns, Gremlins II, Tales from the Crypt,* and many others—provided an independent analysis at CSICOP's request. Interestingly, Stokes's critique also indicated that the alien figure was a dummy cast in an upright position. He further noted that it seemed lightweight and "rubbery," that it therefore moved unnaturally when handled, especially in one shot in which "the shoulder and upper arm actually are floating rigidly above the table surface, rather than sagging back against it" as would be expected (Stokes 1995).

CSICOP staffers (Executive Director Barry Karr, SKEPTICAL INQUIRER Assistant Editor Tom Genoni, Jr., and I) monitored developments in the case. Before the film aired, CSICOP issued a press release, briefly summarizing the evidence against authenticity and quoting CSICOP Chairman Paul Kurtz as stating: "The Roswell myth should be permitted to die a deserved death. Whether or not we are alone in the universe will have to be decided on the basis of better evidence than that provided by the latest bit of Roswell fakery. Television executives have a responsibility not to confuse programs designed for entertainment with news documentaries."

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The GAO Roswell Report and Congressman Schiff

PHILIP J. KLASS

An 18-month search completed last summer of United States government documents—including once highly classified minutes of meetings of the National Security Council—conducted by the General Accounting Office at the request of Representative Steven Schiff of New Mexico, failed to find anything to indicate that the government recovered a crashed flying saucer north of Roswell, New Mexico, in mid-1947. The investigation was conducted by GAO's National Security and International Affairs Division, which has access to the most highly classified information.

The GAO investigators discovered *nothing* to challenge the conclusions of a 1994 report by the United States Air Force, based on its own extensive investigation. The Air Force concluded that the unusual material recovered from a ranch north of Roswell was debris from a train of balloons, radar tracking targets, and other devices associated with a then top secret Project Mogul. [*SI*, Vol. 19, No. 1, January-February 1995.]

But you could get a vastly different impression from the news release issued by Schiff on July 28, 1995, which formed the basis of many news media stories, including one filed by the Associated Press. Schiff's two-page news release carried the headline: "SCHIFF RECEIVES, RELEASES ROSWELL REPORT (missing documents leave unanswered questions)."

The release began: "Congressman Steve Schiff today released the General Accounting Office (GAO) report detailing the results of a records audit relating to events surrounding a crash in 1947, near Roswell, N.M., and the military response. The 20-page report is the result of constituent information requests to Congressman Schiff and the difficulty he had getting answers from the Department of Defense in the now 48-year-old controversy.

"Schiff said important documents, which may have shed more light on what happened at Roswell, are missing. 'The GAO report states that the *outgoing* messages from Roswell Army Air Field (RAAF) *for this period of time* were destroyed without proper authority.' [Emphasis added.] Schiff pointed out that these messages would have shown how military officials in Roswell were explaining to their superiors exactly what happened."

Based on the wording of Schiff's news release, one might conclude that the "missing" outgoing RAAF teletype messages were only for a brief period in early July of 1947. But the GAO reports its auditors were unable to locate any outgoing RAAF messages for a *three-year period* extending from October 1946 through December 1949.

During an interview with Schiff in his Washington office on July 29, 1995, I noted that Pentagon officials first learned from news wire service reports—rather than official channels—that the Roswell Army Air Field (RAAF) had announced recovery of one of the then mysterious "flying disks." Because the flying disks might have been Soviet spy vehicles, I asked the Congressman if it would not have been more logical for Pentagon officials to have called the RAAF base commander on the telephone rather than take time to compose and transmit a teletype inquiry. Schiff replied: "I think they would have done it by both."

Schiff's news release failed to mention that when the GAO examined once highly classified minutes of meetings of the National Security Council for 1947 and 1948, it found no mention of the Roswell incident. I asked Schiff: "If the U.S. government had recovered an alien spacecraft in New Mexico in July of 1947, do you not believe that that extraordinary event would have been discussed at National Security Council meetings?"

Schiff responded: "I would have to say, but let me say first, my endeavor has *never* been to look for UFOs or aliens as such. My endeavor has been

to look to see what was in the government records insofar as they could be reconstructed at this point, which after 50 years is problematic. And I went to the GAO because the Department of Defense would not be cooperative in that regard—in fact, I believe, gave me the run-around when I requested the information."

When I pressed Schiff to answer my question, he responded: "It would be such an unusual event...that I'm not sure how it would be handled and even if it were presented to the national leaders and National Security Council, I'm not sure I would necessarily say that you could say how they would handle the minutes of such a meeting." In other words, Schiff is uncertain whether recovery of an alien spacecraft—which could be the precursor of an attack on Earth—would be reported to and discussed by the president and National Security Council. And even if discussed, Schiff is unsure whether there would be any mention of the incident in any of the highly classified minutes of NSC meetings.

The GAO report included a copy of an outgoing teletype message from the Dallas bureau of the Federal Bureau of Investigation to FBI headquarters, sent at 6:17 p.m. on July 8, 1947, that read:

> EIGHTH AIR FORCE, TELEPHONICALLY ADVISED THIS OFFICE THAT AN OBJECT PURPORTING TO BE A FLYING DISC WAS RECOVERED NEAR ROSWELL, NEW MEXICO, THIS DATE. THE DISC IS HEXAGONAL IN SHAPE AND WAS SUSPENDED FROM A BALLOON BY CABLE. . . . FURTHER ADVISED THAT THE OBJECT RESEMBLES A HIGH ALTITUDE WEATHER BALLOON WITH A RADAR REFLECTOR. . . .

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Representative Steven Schiff of New Mexico.

The GAO report also includes a copy of the "Combined History, 509th Bomb Group and Roswell Army Air Field, 1 July 1947 to 31 July 1947." This once-classified document reports: "The Office of Public Information was kept quite busy during the month answering inquiries on the 'flying disc' which was reported to be in the possession of the 509th Bomb Group. The object turned out to be a radar tracking balloon."

The Congressman's news release briefly summarizes these documents but dismisses their importance in the following words: "Even though the weather balloon story has since been discredited by the US Air Force, Schiff suggested that the authors of those communications may have been repeating what they were told rather than consciously adding to what some believe is a 'cover-up.'"

The Congressman was quoted as saying: "At least this effort caused the Air Force to acknowledge that the crashed vehicle was no weather balloon. That explanation never fit the fact of high military security used at the time." Clearly, Schiff has not carefully studied the 1994 Air Force report and seemingly believes that RAAF's action in issuing a news release saying it had recovered a flying disk can be characterized as "high military security."

The original Air Force identification of the debris—discovered by rancher "Mac" Brazel—as the remnants of a weather balloon and radar tracking target, was made on July 8, 1947, in the office of Brigadier General Roger Ramey, Eighth Air Force commander at Fort Worth by Weather Officer Irving Newton. At the time, neither officer had the security clearance necessary to know about a then top secret experimental program, called Project Mogul, which was then under way at the Alamogordo Army Air Field in New Mexico. The project's objective was to explore the feasibility of using high-altitude balloons outfitted with acoustic sensors to detect when the Soviets tested their first nuclear weapon.

On June 4, 1947, a cluster ("train") of more than 20 weather balloons with multiple radar targets was launched from the Alamogordo Army Air Field and was tracked to within 17 miles of the Brazel ranch before radar contact was lost. Brazel discovered the unusual debris 10 days later. [See *SI*, Vol. 19, No. 4, July-August 1995, p. 15.] The description of the debris given by rancher Brazel on July 8, 1947, in the offices of the *Roswell Daily Record*, and recent recollections of his daughter Bessie, who helped her father collect the debris, indicate that the debris came from this launch of a train of ordinary weather balloons and associated equipment.

The recent investigation by the Air Force into claims of a crashed flying saucer near Roswell was initiated in

"Schiff is uncertain whether recovery of an alien spacecraft—which could be the precursor of an attack on Earth—would be reported to and discussed by the president and National Security Council."

early 1994 in response to a GAO request, and its report was released in September 1994. The Air Force investigation officially uncovered the link to Project Mogul, which had been discovered about two years earlier by UFO researcher Robert Todd, and more recently by UFO researcher Karl Pflock. (Pflock's wife, Mary Martinek, is Schiff's chief of staff and his liaison with the GAO for its Roswell investigation.) The 1994 Air Force report, p. 21, states that "the most likely source of the wreckage recovered from the Brazel Ranch was from one of the Project Mogul balloon trains." [Emphasis added.]

In December 1992, shortly after Pflock had launched his own personal investigation into the Roswell incident, he supplied Schiff with a 130-page briefing paper on the subject. Three months later, Schiff wrote to then Defense Secretary Les Aspin seeking a "definitive explanation of what transpired and why." Schiff's letter said that based on (alleged) witness testimony, "the balloon explanation was a cover story" and that "federal authorities sought to intimidate witnesses and their families into silence," according to an article in the January 14, 1994, *Albuquerque Journal.*

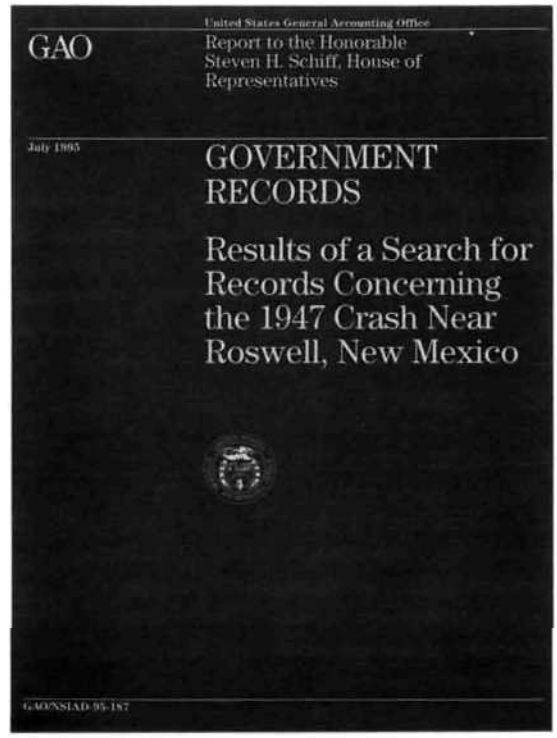
Since then, Pflock's several-year investigation has convinced him that "at least the great majority if not all" of the debris found by Brazel was wreckage from the cluster of balloons, radar targets and instruments launched from Alamagordo on June 4, 1947. In Pflock's invited talk to New Mexicans for Science and Reason in August, he said he thinks that "most reasonable people will agree" and that he believes that the evidence is "fairly conclusive."

When the *Albuquerque Journal* published an article by its Washington correspondent, Richard Parker, who interviewed Schiff about the GAO report, the article carried the headline: "Schiff: Roswell UFO a Balloon." This prompted Schiff to challenge the accuracy of Parker's article, in a letter published in the newspaper August 14, 1995.

Wrote Schiff: "With the sole exception of rejecting the original military explanation of a crashed 'weather balloon,' which the Air Force now disavows, I have never stated any conclusion about the Roswell crash. . . . Of course, the 1994 Air Force explanation is a possible answer. . . ." Schiff said that the GAO inquiry, which he generated, "has had some notable results in addition to forcing the Air Force to change its story."

Schiff's letter also said:

• "Two documents were uncovered which refer to a 'radar tracking device,' (which means weather balloon) though the writers at the time could merely have been repeating what they were told.


United States General Accounting Office
GAO
Report to the Honorable Steven H. Schiff, House of Representatives
July 1995
GOVERNMENT RECORDS
Results of a Search for Records Concerning the 1947 Crash Near Roswell, New Mexico
GAO/NSIAD-95-187

• "Agencies, including the CIA, stated for the first time that they do not have information on the Roswell incident.

• "Perhaps most significantly, documents most likely to contain helpful information, the military's outgoing messages, were not found. It was estimated they were destroyed over 40 years ago without proper authority. This means the military cannot explain who destroyed the records, or why."

Schiff's published letter concluded: "Yet, from this, Parker manages to conclude for me that the Air Force came clean. His inference is clearly out of this world."

In early 1994, when it was first disclosed that Schiff had asked the GAO to investigate the Roswell incident and he was interviewed by the *Albuquerque Journal,* the newspaper reported that Schiff said "he doesn't believe a UFO was recovered at the ranch." The article quoted Schiff as saying: "If I had to guess, I would say some kind of military experiment."

Because Schiff's guess proved to be remarkably prescient, I asked him if the GAO report and the 1994 Air Force report had increased his earlier-stated belief that the debris discovered by rancher Brazel was *not* from a UFO. He responded: "I think you're centering too much on my beliefs in the matter," but he acknowledged that the Project Mogul explanation "could well be what actually happened."

Schiff predicted that "the GAO report will not change anybody's mind" about whether the government recovered a crashed flying saucer in 1947. "People can make their own conclusions and that was my goal all along and I have accomplished that goal," Schiff said.

Schiff has had extensive media exposure as a result of his Roswell activities, including appearances on numerous local and network television shows. He has twice appeared on Larry King's show (CNN) to discuss his Roswell efforts.

Schiff said he is convinced "that people have a right to information from their government on any subject—with the notable exception of [information affecting national] security." This prompted me to ask if Schiff planned to seek congressional hearings on the all-important but still unresolved issue of whether the United States government is involved in a UFO cover-up. Schiff said, "I have no intention of taking it further." □

Why Creationists Don't Go to Psychic Fairs: Differential Sources of Pseudoscientific Beliefs

JOHN H. TAYLOR, RAYMOND A. EVE, and FRANCIS B. HARROLD

The various pseudoscientific beliefs cannot be explained as if they were a single phenomenon. At least two major categories—creationism and fantastic science—exist, and they are causally distinct.

The United States boasts a peerless scientific establishment but is also home to a wide variety of people passionately opposed to many accepted scientific findings or even to the conduct of science itself. This latter category includes many different groups, ranging from certain religious fundamentalists to some New Age adherents. For all their diversity, they share a willingness to dismiss any scientific findings that contradict their beliefs. Their frequent response, for example, to the consistent scientific rejection of their empirical claims is to assert that scientists are guilty of excessive conformity and dogmatism. A truly fascinating element within this essentially antiscience grouping is the subset we will consider here: people who conditionally profess to respect the prestige and authority of science (Cavanaugh 1985).

The beliefs of these antiscience groups, despite their

aspiration to scientific status for their claims, are often presented in both the mass media and the academic literature under the rubric of "pseudoscientific."[1] Included in this category are such well-known examples as scientific creationism,[2] certain aspects of UFOlogy and parapsychology, (Immanuel) Velikovskian catastrophism, and diffusionist claims of visits by ancient Celtiberians to Massachusetts or Africans to Mexico. Previous research by two of the authors (Harrold and Eve 1987, 1993; Harrold, Eve, and de Goede 1995; Eve and Harrold 1991) has been largely concerned with describing the patterns and sources of pseudoscientific beliefs about the human past.

Until recently, most of the scientific literature arising in reaction to these claims has been devoted to "debunking" such claims, rather than attempting to understand their origins (Harrold and Eve 1987). Thus when sources are discussed, the advocates of fantastic claims are usually said to be ignorant, stupid, or disordered. These explanations do not go far toward explaining these beliefs—especially among people who are apparently not ignorant, stupid, or disordered. For example, some of the principals of the Institute for Creation Research and its more recent counterpart, the Foundation for Thought and Ethics, hold advanced scientific degrees. Their publications—perhaps most notably the creationist biology textbook *Of Pandas and People* (Davis and Kenyon 1993)—are quite professionally packaged, but pseudoscience nonetheless.

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Sources of Pseudoscientific Beliefs

One of the grand adventures in studying pseudoscience is the attempt to understand the many social and behavioral scientific perspectives of these belief systems. We have found particularly useful the formulation by social psychologists Singer and Benassi (1981). These authors have suggested four distinct classes of factors that condition for the acceptance of paranormal and pseudoscientific beliefs:

1. **Cognitive Biases:** Natural errors in processes of reasoning exist (Piatelli-Palmerini 1994), such as the tendency to perceive order in random data or to jump to an emotionally attractive conclusion. Unfamiliar lights in the night sky thus may be seen as an alien spaceship.

2. **Uncritical or Erroneous Media Coverage of Science:** All too often, the mass media give sensationalistic coverage to extravagant claims about extraterrestrials or the alleged evidence of Bigfoot. Frequently, however, the media fail to present representative information from mainstream science that rejects these claims.

3. **Inadequate Science Education:** A disheartening series of studies in the 1980s and 1990s (Walters 1995; Miller 1987) indicated that many Americans learn little in school about either the methods or the findings of science. A study by Eve and Dunn (1990), for example, found that more than one-fourth of the nation's biology teachers actually favored the teaching of creationism over the teaching of evolution.

4. **Sociocultural Factors:** People tend to adapt to and maintain the beliefs of the society, social class, ethnic or religious group, and family in which they are socialized. A college student reared in a devout fundamentalist home will be unlikely to find an evolutionary biology course of interest. A black student who finds a chilly reception in a predominantly white school may be drawn to writings and lectures on "Afrocentric" claims that his supposed Egyptian ancestors invented civilization (Ortiz de Montellano 1993).

Purpose of the Study

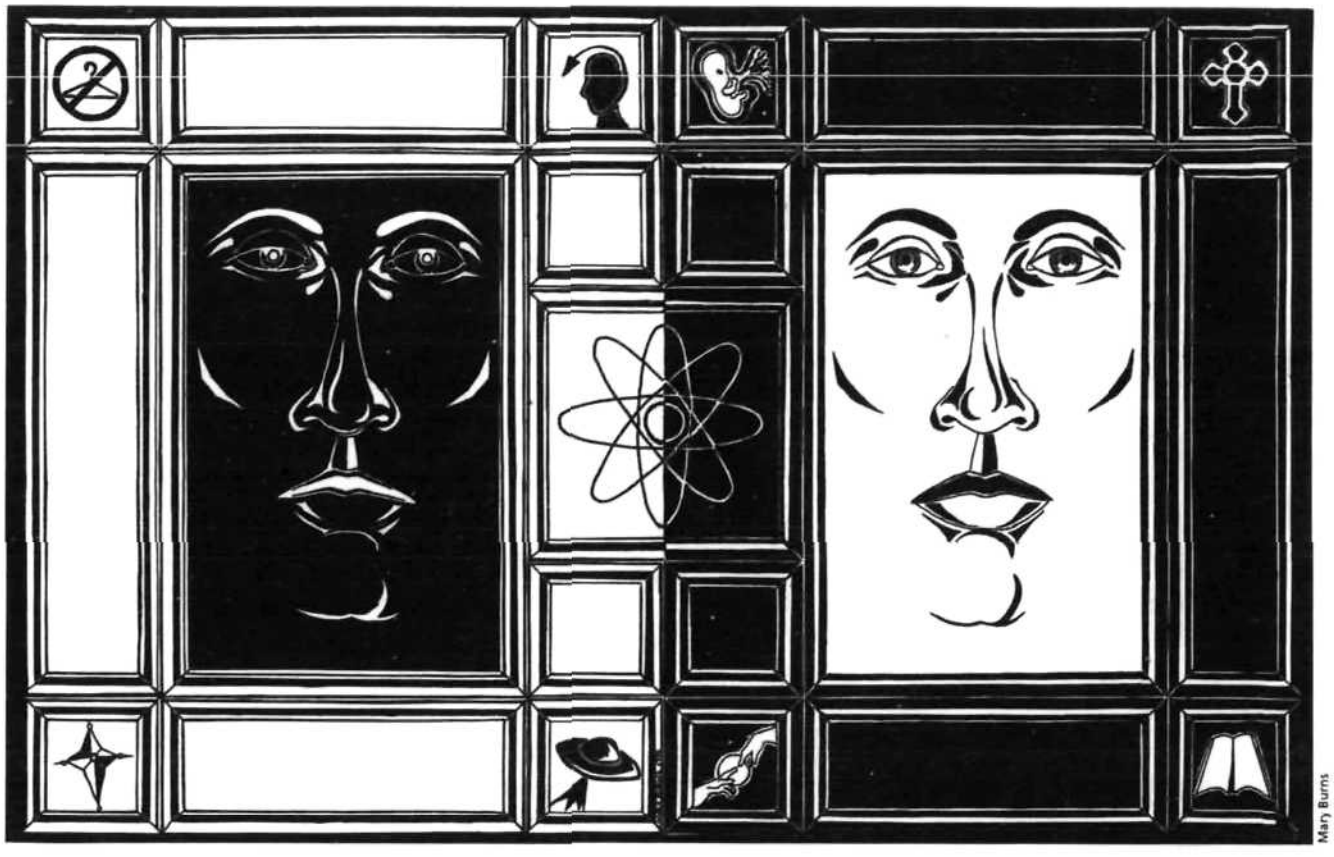
Readers new to the scholarly study of pseudoscience may well be asking, "Why all the concern about such marginal beliefs?" One answer will become apparent when we discuss survey results, but documenting the alarming numbers of adherents to these fantastic beliefs is only a starting point. Of greater significance is that an emerging body of research has only recently positioned us to frame a number of important questions.

In laying the groundwork for the current study, Harrold and Eve in the mid-1980s conducted a collaborative project with Kenneth Feder and Luanne Hudson that examined pseudoscientific beliefs among college students (Feder 1987; Harrold and Eve 1987; Hudson 1987). In this work, the researchers identified a minimum of two basic types of such belief—creationism and what was termed *fantastic science.* The latter category consists of a panoply of fanciful claims, including Erich von Däniken's famous "ancient astronauts" hypothesis.[3] Further, the researchers noted that the creationist dimension appeared tied to a conservative Protestant theology and worldview, and was almost entirely unrelated to fantastic science.

Building on these contributions, we empirically test these suggestions in the form of three hypotheses explained below, and present results. We believe that we have begun to be able to show that there exists a certain logic about the "rules" one uses to decide on the "truth" of a thing, and that such rules underlie the adherence to many pseudoscientific beliefs. Finally, it appears likely that such rules provide the mechanism by which one can describe the source of the two main categories of pseudoscientific beliefs, creationism and fantastic science.

Culture Wars Driven by Heuristic Rules?

Heuristic methods are the rules of thumb or procedures used to search for



solutions or answers. If we believe that these "rules for knowing" allow one to establish truth, how might we conceptualize a measurement of these rules? We propose that the members of one subculture within American society might be termed *cultural traditionalists.* Specifically, we suggest that until recently most U.S. citizens (and probably most other humans) believed a thing to be true because of faith, tradition, revelation, or authority. Such an attitude might be summed up in bumper sticker declarations such as "God said it, I believe it, that settles it."

A second subculture, a thread in Western society since the late 1700s at least, derives from some of the epistemological principles of Enlightenment. Specifically, truth is to be sought by the putting forth of hypotheses that are evaluated and accepted or rejected by empirical testing. Those who use an approach or have a worldview that stresses empiricism and scientific inquiry we term *cultural modernists.*

We suggest that a third, and emerging, subculture (or better, collection of subcultures) within U.S. society opposes a return to traditionalism as defined in the first subculture, and views the modernism in the second subculture as having led to rampant militarism, consumerism, pollution, and global warming. We will term the members of the third subculture *postmodernists.* As yet very loosely organized and multinucleated, this subculture spans orientations as diverse as New Age followers, holistic health practitioners, and even the far left of academe (including certain subsets of rhetoreticians, philosophers, and feminists). These are strange bedfellows, indeed. They can only be lumped together as an entity in the postmodernist subculture because of their common rejection of the validity of cultural traditionalism and cultural modernism.

We expected from our testing that those respondents most inclined toward cultural traditionalism would be the most likely to support religiously based pseudoscientific concepts like creationism, and that such beliefs would be highly correlated with a religiously and politically conservative worldview and social agenda. We also expected that those who appeared to be most inclined toward postmodernism would adhere to fantastic science beliefs.

This leads to the presentation of the following hypotheses to be tested here:

Hypothesis 1: Fantastic science beliefs and religiously based beliefs (such as creationism) can be shown to constitute mutually exclusive empirical domains.

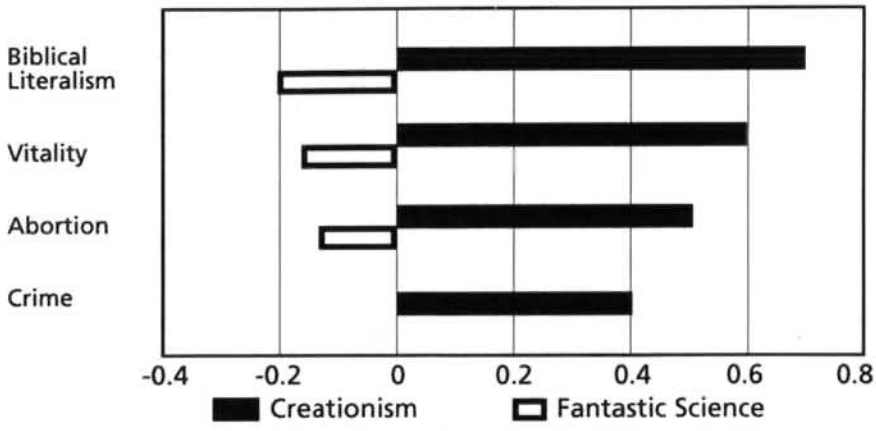
Hypothesis 2: The sources of beliefs concerning matters of fantastic science differ from the sources of beliefs in religiously based pseudoscience.

Hypothesis 3: The differential sources of the two categories of belief center around the rules that believers use to determine what makes a proposition or claim true.

The Sample and the Research Instrument

A total of 338 students from the University of Texas at Arlington (enrollment approximately 23,000) completed anonymous questionnaires during the 1993-1994 academic year.[4] The survey instrument consisted of 75 items. These items included a range of

Figure 1 – Correlates of Pseudoscientific Beliefs



All correlations significant to the .05 level or greater

statements associated with what may be termed *opinions about facts, opinions about social and moral issues,* and *opinions about reliable rules for determining truth.* Opinions were solicited regarding creationism, paranormal beliefs, and belief in fantastic science.[5] Finally, items were included that measured educational, religious, demographic, and socioeconomic background factors. This sample was not statistically representative of the general population nor of college students in the United States, though the percentages are congruent with many prior student studies. What we are interested in is not the percentages of various beliefs, but their relationships to other variables.

Results of the Survey

A range of fantastic science beliefs are prominent in our sample. No less than 59 percent agreed with or were unsure whether UFOs are actual spacecraft from other planets. The belief that some people can use psychic power to accurately predict future events was undisputed by 49 percent of respondents. When presented with the statement that time travel into the past is possible, uncertainty crept up somewhat with only 45 percent agreeing or unsure. That séances can communicate with the dead, however, was agreed with by 56 percent of respondents. So much for any optimism on our part that pseudoscientific beliefs are eliminated by exposure to higher education!

When asked about items relating to creationism, 60 percent indicated agreement or uncertainty that "There is a lot of scientific evidence for the Bible's account of mankind's creation." Moreover, 88 percent were unable to dispute the statement that "Noah's Ark has been found on the top of Mount Ararat in Turkey." Finally, 80 percent agreed or were unsure that "Adam and Eve, the first human beings, were created by God."

The Creation of Scales

Our next step was to ask what influences could be identified in the answers we received. We used the statistical technique of factor analysis and were able to identify two meaningful factors.[6] A "factor" can be interpreted as an underlying force within a data set that causes some items to be highly interrelated with each other. Upon examination, all survey items that were highly correlated with, or "loaded" on the first factor (hereafter, Factor 1) involved issues such as belief in Bigfoot as a real creature, extraterrestrials visiting ancient humans, psychic powers predicting the future, the Loch Ness Monster as a real creature, and UFOs as spaceships from other planets. We designated Factor 1 the "Fantastic Science" factor.

Similarly, all survey items that loaded on the second factor (hereafter, Factor 2) shared issues such as belief in the existence of physical evidence for Noah's Ark, the existence of scientific proof of creationism, and the actuality of Adam and Eve. Factor 2 was labeled "Creationism." Further statistical analyses established that the variables associated with each factor could be combined to create two separate scales, each of which were quite statistically reliable (Fantastic Science alpha = .72 and Creationism alpha = .71).

The Correlates of Creationism

Creating the above scales allowed us to ask, "Are there differences in the way various survey items correlate with the scales of Fantastic Science and Creationism?" Four additional scales were created from items in the survey in an attempt to operationalize these concepts. We created a scale named "Biblical Literalism" (alpha = .78), which included statements such as "Everything written in The Bible is literally true, word for word." We then developed a "Vitality" scale (alpha = .76), which measured attitudes regarding the sanctity of life. (For example, the Vitality scale included statements in opposition to genetic engineering, mercy killing, and fetal tissue research.) The third scale, "Abortion," consisted of statements asking for the evaluation of various moral and legal aspects of abortion. Finally, a scale of "Crime" was developed. It included statements attributing an increase in the rate of crime to excessive leniency and advocating more punitive approaches, including the death penalty.

As predicted earlier, the Creationism scale was indeed strongly correlated with scoring high on cultural traditionalism and with holding a conservative social agenda (Figure 1). Creationism was strongly correlated (Pearson's r = .7)[7] with Biblical Literalism and with the conservative views on the preservation of life embodied in the scale of Vitality (r = .6). Those scoring high on Creationism also tended to be strongly opposed to abortion (r = .5). Finally, more traditional beliefs about Crime showed a moderate correlation with Creationism (r = .4).

The Correlates of Fantastic Science

In significant contrast, the Fantastic Science scale generally produced a weak *inverse* correlation with cultural traditionalism. Biblical Literalism ($r = -.2$), Vitality ($r = -.16$), and Abortion ($r = -.15$) all also showed this reversed, and much weaker, relationship. Crime ($r = -.13$) showed essentially no relationship to belief in fantastic science.

Creationism as Cultural Traditionalism

Interestingly, it can be seen that persons with a deep commitment to creationism and related religiously based pseudoscientific ideas have almost nothing in common with strong believers in fantastic science! If anything, the two thought systems are not just independent of one another, but largely antagonistic. This is just what we would expect on the basis of our initial hypothesis. Remember, we predicted that the rules people use to ascertain the truth would be quite different depending on the subculture one belongs to. It seems reasonable to suggest on the basis of our findings that those believing strongly in creationism are likely to use faith, tradition, revelation, or authority as their major way of establishing the truth.

In order to test this assertion, we performed a statistical analysis using all 26 separate variables related to the Creationism scale. The statistical procedure we used is known as a stepwise regression. It ranks each variable as to its effectiveness in predicting a strong belief in creationism where all other variables in the model are held constant. In an allegorical example, the springtime arrival of storks in Sweden and a correlated increase in birth rate has tempted many to believe that storks bring babies. Of course, a closer analysis reveals a third variable, seasonality, causes the first two items to covary or rise and fall together. The correlation between storks and babies is therefore a noncausal one, often called a spurious correlation. Unfortunately, the general public all too often fails to distinguish that two things that occur together may not involve a causal relationship. So regression techniques provide a better idea of causality among variables. While correlation establishes simultaneity (two or more things occurring at the same time), regression can be used to model causal relations.

We found that among the 26 variables related to creationism, one clearly emerged as having by far the most explanatory power. This variable asked the respondent to assess the statement "It does not matter what scientists say, it is God's word that defines the Truth." There can hardly be any clearer statement that cultural traditionalists don't much care for the rules for truth used by cultural modernists. It also suggests that rules for knowing seem causally prior to all other types of predictor variables.

Fantastic Science as Postmodernism

Is there, then, any chance that we can support the argument presented in our earlier hypotheses that believers in fantastic science might use postmodernist rules for establishing their own version of the truth?

Postmodernist rules, it seems likely, would eschew both traditional religion and science as ways of knowing. When regression analysis is applied to all 20 items related to fantastic science, an intriguing confirmation of this hypothesis emerged. The variable with the most explanatory power asked whether it was true that "Neither the 'beliefs' of the world's churches today nor scientific 'studies' adequately explain the world around us. An adequate explanation requires other forms of spirituality." The item that ranked second in explanatory power asked for agreement with the statement "Pagan religions from previous times have much to teach us about how to solve today's problems." Again, there could hardly be clearer evidence for support of our hypothesis. Obviously, postmodernists don't care what traditional religion or science determines as the truth.

Summary and Conclusions

It can be almost a shocking experience to review survey results and realize that beliefs in pseudoscience are so widespread, even among college students. As with the microscope or telescope, however, statistical analysis is a grand tool of exploration with which to combat excessive reliance on intuition. Within the raw percentages we often find subtle trends that hold promise for a more complete understanding of the sometimes amazing world around us. This study may be a case in point.

We began by noting that, contrary to the intuition of many (including many scientists), pseudoscientific beliefs are not restricted to the domain of the ignorant, stupid, or disordered. Further, we observed that at least two major categories of pseudoscientific belief exist, each being almost causally separate phenomena. The first of these, identified with a religious belief in creationism, seemed strongly influenced by the subculture within which a respondent is located. Such sociocultural factors, however, seem to create their effect largely through influencing the epistemological rules (tradition, authority, etc.) a respondent uses for determining truth.

In contrast, the second major category of pseudoscience appears to be a set of beliefs we have termed fantastic science. These beliefs seem far less influenced by sociocultural factors or subculture than a belief in creationism. Moreover, belief in fantastic science appeared to be highly correlated with the rejection of traditional religion and science as valid methods for establishing the truth. This hints that perceptual errors like those identified at the beginning of this article may play a larger explanatory role in fantastic science beliefs than in the other beliefs examined here. Another fascinating dimension of fantastic science is that the apparently diverse issues of UFOs, monsters, and mysterious mental powers appear highly empirically interrelated.

We hope we have persuaded the reader of the value of exploring the

rules used by adherents of pseudoscience to assess the truth. Further, we suggest that the guidelines believers use to establish these rules should prove a productive line of inquiry. Considering the profound role played by sociocultural issues, another intriguing question is whether the choice of rules employed is influenced by variations in social setting. For example, is it possible that one might use cultural traditionalist rules when considering the origins of humanity when one is in a traditional religious community, but unknowingly switch to a different set of rules when one arrives on a college or university campus and is asked to understand molecular biology? Do people use one set of rules for knowing when they are on campus and another set of rules when they return to a traditional community?

This study has looked only at college students. It will not surprise us, though, if these results are supported when surveying a broader population. For example, preliminary analyses of a similar survey collected at a creationist fair earlier this year appear to confirm relationships discussed in this article. We hope, however, that this study will stimulate further research among other segments of the public (such as UFO-believer groups, pagan religious groups like Wiccans, and so on). In the old days, social scientists who studied deviance adopted a medical perspective. They diagnosed symptoms, declared the subject mentally ill, and prescribed cures. Recently, some have tried a different strategy. They asked the deviants how they perceived the world, and an odd thing happened. Given the assumptions the deviants made about the nature of their own realities, their "sick" behavior appeared quite reasonable, often even logical.

Perhaps for too long we have also used the medical model to process our impression of those who believe in pseudoscience. We have found them stupid, ignorant, or even psychopathic. While this may well be true of some relatively small subsets, we might well be surprised if we ask them to tell us how they make sense of things (including the heuristic assumptions they use). We might well learn again that the temptation to apply pejorative labels to outsiders as an explanation for their behavior and attitude is more successful in satisfying our own emotional needs than in advancing toward greater insight. Without this communication, we will fail to develop effective tactics for responding to the increasing prevalence of pseudoscientific belief in today's world.

Notes

1. Eve and Harrold have discussed elsewhere (1991:84-86) why we accept the term *pseudoscience* over alternative terms—often presented as less harshly judgmental—such as *unconventional science* or *parascience*.

2. There are several different types of creationist belief, most of which purport a scientific methodology. They are distinguished by tenets such as whether the Earth is a few thousand years old or a few billion years old. Moreover, new variants of creationism are emerging. For example, subsequent to the 1987 United States Supreme Court ruling that defined creation science as religion and banned it from the public classroom, creationist activism in the schools has centered instead on concepts such as "intelligent design" and "abrupt appearance."

3. With apologies to Stephen Williams, whose *Fantastic Archaeology* (1992)—an authoritative account of North American cult archaeology—provided the inspiration for our term.

4. Classes selected were sections of a variety of upper- and lower-level undergraduate sociology and anthropology courses. Survey participation was voluntary, but nearly all students chose to complete the survey. A total of 107 males (32 percent) and 226 females (67 percent) responded. Black students accounted for 10 percent of the responses, whites 75 percent, and Hispanics 6 percent. The age of respondents included 54 percent who were 22 years old or younger, 28 percent who were from 23 to 29, and 17 percent who were 30 years of age or older. Undergraduate class standing was fairly evenly distributed among seniors (31 percent), juniors (28 percent), sophomores (21 percent), and freshmen (18 percent). Social science majors comprised 44 percent of respondents, humanities majors 16 percent, science majors 16 percent, and anthropology majors 6 percent.

5. Opinion items were designed as Likert-type scales. Many items were selected because they were prominent in previous research efforts. Other items were entirely new. A copy of the questionnaire is available from the authors upon request. Space limitations have prevented reporting in detail the wording of all the items used in the analysis.

6. Details of the statistical analyses are available from the authors upon request.

7. Numbers within the parentheses refer to statistical measures of association. Pearson's r here refers to simple product-moment correlation used when all measures are interval level data. While some relationships were more significant than others, all correlations were significant at the .05 level or better. A .05 level of significance means that among random data such a correlation could not occur more often than one time out of twenty.

8. The authors would like to express their appreciation to Julia Lam for her assistance in formulating the questionnaire and in coding and analyzing the data.

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Eyewitness Testimony and the Paranormal

RICHARD WISEMAN, MATTHEW SMITH, and JEFF WISEMAN

Experiments show that beliefs and expectations can lead people to be unreliable witnesses of supposedly paranormal phenomena. Investigators must carefully assess testimony, regardless of whether it reinforces or opposes their own beliefs.

Much of the evidence relating to paranormal phenomena consists of eyewitness testimony. However, a large body of experimental research has shown that such testimony can be extremely unreliable.

For example, in 1887 Richard Hodgson and S. John Davey held séances in Britain (in which phenomena were faked by trickery) for unsuspecting sitters and requested each sitter to write a description of the séance after it had ended. Hodgson and Davey reported that sitters omitted many important events and recalled others in incorrect order. Indeed, some of the accounts were so unreliable that Hodgson later remarked:

> The account of a trick by a person ignorant of the method used in its production will involve a misdescription of its fundamental conditions . . . so marked that no clue is afforded the student for the actual expla-

Gerald Fried

nation (Hodgson and Davey 1887, p. 9).

In a partial replication of this work, Theodore Besterman (1932) in Britain had sitters attend a fake séance and then answer questions relating to various phenomena that had occurred. Besterman reported that sitters had a tendency to underestimate the number of persons present in the séance room, to fail to report major disturbances that took place (e.g., the movement of the experimenter from the séance room), to fail to recall the conditions under which given phenomena took place, and to experience the illusory movements of objects.

More recently, Singer and Benassi in the United States (1980) had a stage magician perform fake psychic phenomena before two groups of university students. Students in one group were told that they were about to see a magician; the other group, that they were about to witness a demonstration of genuine psychic ability. Afterward, all of the students were asked to note whether they believed the performer was a genuine psychic or a magician. Approximately two-thirds of *both* groups stated they believed the performer to be a genuine psychic. In a follow-up experiment the researchers added a third condition, wherein the experimenter stressed that the performer was *definitely* a magician. Fifty-eight percent of the people in this group still stated they believed the performer to be a genuine psychic!

These studies admirably demonstrate that eyewitness testimony of supposedly paranormal events can be unreliable. Additional studies have now started to examine some of the factors that might cause such inaccuracy.

Clearly, many supposedly paranormal events are difficult to observe simply because of their duration, frequency, and the conditions under which they occur. For example, ostensible poltergeist activity, séance phenomena, and UFO sightings often occur without warning, are over within a few moments, take place under poor lighting or weather conditions, or happen at a considerable distance from observers. In addition, some people have sight/hearing deficiencies, while others have observed these phenomena under the influence of alcohol, drugs, or when they are tired (especially if they have had to wait a relatively long time for the phenomena to occur).

It is also possible that observers' beliefs and expectations play an important role in the production of inaccurate testimony. Different people clearly have different beliefs and expectations prior to observing a supposed psychic—skeptics might expect to see some kind of trickery; believers may expect a display of genuine psi. Some seventy years ago Eric Dingwall in Britain (1921) speculated that such expectations may distort eyewitness testimony:

> The frame of mind in which a person goes to see magic and to a medium cannot be compared. In one case he goes either purely for amusement or possibly with the idea of discovering 'how it was done,' whilst in the other he usually goes with the thought that it is possible that he will come into direct contact with the other world (p. 211).

Recent experimental evidence suggests that Dingwall's speculations are correct.

Wiseman and Morris (1995a) in Britain carried out two studies investigating the effect that belief in the paranormal has on the observation of con-

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juring tricks. Individuals taking part in the experiment were first asked several questions concerning their belief in the paranormal. On the basis of their answers they were classified as either believers (labeled "sheep") or skeptics (labeled "goats"). [Gertrude Schmeidler, City College, New York City, coined the terms *sheep* and *goats.*]

In both experiments individuals were first shown a film containing fake psychic demonstrations. In the first demonstration the "psychic" apparently bent a key by concentrating on it; in the second demonstration he supposedly bent a spoon simply by rubbing it.

After they watched the film, witnesses were asked to rate the "paranormal" content of the demonstrations and complete a set of recall questions. Wiseman and Morris wanted to discover if, as Hodgson and Dingwall had suggested, sheep really did tend to misremember those parts of the demonstrations that were central to solving the tricks. For this reason, half of the questions concerned the methods used to fake the phenomena. For example, the psychic faked the key-bending demonstration by secretly switching the straight key for a pre-bent duplicate by passing the straight key from one hand to the other. During the switch the straight key could not be seen. This was clearly central to the trick's method; and one of the "important" questions asked was whether the straight key had always remained in sight. A second set of "unimportant" questions asked about parts of the demonstration that were not related to the tricks' methods.

Overall, the results suggested that sheep rated the demonstrations as more "paranormal" than goats did, and that goats did indeed recall significantly more "important" information than sheep. There was no such difference for the recall of the "unimportant" information.

This is not the only study to investigate sheep/goat differences in observation and recall of "paranormal" phenomena. Jones and Russell in the United States (1980) asked individuals to observe a staged demonstration of extrasensory perception (ESP). In one condition the demonstration was successful (i.e., ESP appeared to occur) while in the other it was not. All individuals were then asked to recall the demonstration. Sheep who saw the unsuccessful demonstration distorted their memories of it and often stated that ESP had occurred. Goats tended to correctly recall the demonstration, even if it appeared to support the existence of ESP.

In addition, Matthew Smith in Britain (1993) investigated the effect that instructions (given prior to watching a film containing a demonstration of apparent psychic ability) had on the recall of the film. Individuals were split into two groups. One group was told that the film contained trickery; the other group was told that it contained genuine paranormal phenomena. The former group recalled significantly more information about the film than the latter group.

All of the above experiments were carried out in controlled laboratory settings. However, another recent study suggests that the same inaccuracies may exist in a more natural setting, namely, the séance room.

Many individuals have reported experiencing extraordinary phenomena during dark-room séances. Eyewitnesses claim that objects have mysteriously moved, strange sounds have been produced, or ghostly forms have appeared, and that these phenomena have occurred under conditions that render normal explanations practically impossible.

Believers argue that conditions commonly associated with a séance (such as darkness, anticipation, and fear) may act as a catalyst to produce these phenomena (Batcheldor 1966). Skeptics suggest that reports of séances are unreliable and that eyewitnesses are either fooling themselves or being fooled by fraudulent mediums.

The authors carried out an experiment in the United Kingdom to assess both the reliability of testimony relating to séance phenomena, and whether paranormal events could be produced in a modern séance. We carried out our experiment, titled "Manifestations," three times. Twenty-five people attended on each occasion. They were first asked to complete a short questionnaire, noting their age, gender, and whether they believed that genuine paranormal phenomena might sometimes take place during séances.

A séance room had been prepared. All of the windows and doors in the room had been sealed and blacked out, and twenty-five chairs had been arranged in a large circle. Three objects—a book, a slate, and a bell—had been treated with luminous paint and placed onto three of the chairs. A small table, the edges of which were also luminous, was situated in the middle of the circle. Two luminous maracas rested on the table.

"Different people clearly have different beliefs and expectations prior to observing a supposed psychic—skeptics might expect . . . trickery; believers may expect a display of genuine psi."

Following a brief talk on the aims of the project, the participants were led into the darkened séance room. Richard Wiseman played the part of the medium. With the help of a torch, he showed each person to a chair, and, where appropriate, asked them to pick up the book, slate, or bell.

Next, he drew participants' attention to the table and maracas. Those participants who had picked up the other luminous objects were asked to make themselves known, and the "medium" collected the objects one by one and placed them on the table.

He then pointed out the presence of a small luminous ball, approximately 5 centimeters in diameter, suspended on

a piece of rope from the ceiling. Finally, he took his place in the circle, extinguished the torch, and asked everybody to join hands.

The medium first asked the participants to concentrate on trying to move the luminous ball and then to try the same with the objects on the table. Finally, the participants were asked to concentrate on moving the table itself. The séance lasted approximately ten minutes.

Clearly, it was important that some phenomena occurred to assess the reliability of eyewitness testimony. The maracas were therefore "gimmicked" to ensure their movement during the séance. In the third séance the table was also similarly moved by trickery. Finally, we also used trickery to create a few strange noises at the end of each séance.

All of the ungimmicked objects were carefully placed on markers so that any movement would have been detectable. After leaving the séance room, the participants completed a short questionnaire that asked them about their experience of the séance.

No genuine paranormal phenomena took place during any of the séances. However, our questionnaire allowed us to assess the reliability of participants' eyewitness testimony.

Would participants remember which objects had been handled before the start of the séance? As the maracas were gimmicked, we had to ensure that they were not examined or handled by anyone. Nevertheless, one in five participants stated that they had been. This was an important inaccuracy, as observers are likely to judge the movement of an object more impressive if they think that the item has been scrutinized beforehand.

This type of misconception was not confined to the maracas. In the first two séances, the slate, bell, book, and table remained stationary. Despite this, 27 percent of participants reported movement of at least one of these. In the third séance the table was gimmicked so that it shifted four inches toward the medium, but participants' testimony was again unreliable, with one in four people reporting no movement at all.

An interesting pattern develops if the results are analyzed by separating the participants by belief. The ball, suspended from the ceiling, did not move at any time. Seventy-six percent of disbelievers were certain that it hadn't moved. In contrast, the same certainty among believers was only 54 percent. In addition, 40 percent of believers thought that at least one other object had moved, compared to only 14 percent of disbelievers. The answers to the question "Do you believe you have witnessed any genuine paranormal phenomena?" perhaps provide the most conclusive result for the believer/disbeliever divide. One in five believers stated that he or she had seen genuine phenomena. None of the disbelievers thought so. This would suggest that while we are all vulnerable to trickery, a belief or expectation of paranormal phenomena during séances may add to that vulnerability.

The results clearly show that it is difficult to obtain reliable testimony about the séance. Indeed, our study probably underestimated the extent of this unreliability as the séance lasted only ten minutes and participants were asked to remember what had happened immediately afterward.

Although a minority of participants believed that they had observed genuine paranormal phenomena, it does not seem unreasonable to assume that these individuals might be the most likely to tell others about their experience. Our results suggest that many of their reports would be fraught with inaccuracies and it might only take a few of the more distorted accounts to circulate before news that "genuine" paranormal phenomena had occurred became widespread.

In short, there is now considerable evidence to suggest that individuals' beliefs and expectations can, on occasion, lead them to be unreliable witnesses of supposedly paranormal phenomena. It is vital that investigators of the paranormal take this factor into account when faced with individuals claiming to have seen extraordinary events. It should be remembered, however, that such factors may hinder accurate testimony regardless of whether that testimony is for or against the existence of paranormal phenomena; the observations and memory of individuals with a strong need to *disbelieve* in the paranormal may be as biased as extreme believers. In short, the central message is that investigators need to be able to carefully assess testimony, regardless of whether it reinforces or opposes their own beliefs concerning the paranormal.

Accurate assessment of the reliability of testimony requires a thorough understanding of the main factors that cause unreliable observation and remembering. Research is starting to reveal more about these factors and the situations under which they do, and do not, occur. Indeed, this represents part of a general movement to increase the quality of the methods used to investigate psychic phenomena (Wiseman and Morris 1995b). Given the important role that eyewitness testimony plays in parapsychology, understanding observation is clearly a priority for future research.

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Objectivity and Repeatability in Science

MICHAEL MUSSACHIA

Our schools need to emphasize the necessity of controlling for the influence of beliefs, desires, and expectations of the experimenters in tests of claims.

I teach philosophy at the college level, primarily courses in logic as critical thinking and in philosophy of science. While most of my students are bright and inquisitive, I am continually amazed by how many of them believe in the paranormal and by their lack of understanding of the scientific method. William Grey recently addressed this issue in an excellent two-part article, "Philosophy and the Paranormal" (SKEPTICAL INQUIRER, Winter 1994 and Spring 1994). I would like to add to the discussion by illustrating the importance of objectivity and repeatability in scientific research.

Among my students it is commonly believed that the scientific method is simply "testing," with perhaps some quantified measurements, period. Hence, many of them believe they have seen, and in some cases participated in, "tests" that verify the existence of psychic powers. Some

of these tests are seen on popular television pseudodocumentaries, others are part of their personal experience. ("I dreamt we had a fire in our house, and a week later we had one in our kitchen!") What is lacking in these tests is, of course, rigorous controls and repeatability.

Science is not just about testing hypotheses, but also how to test them. When students are aware of the importance of experimental controls, it is usually only in regard to controlling extraneous, physical factors that might otherwise influence the test, as in the effects of wind on the trajectory of a projectile or the effects of nearby magnets on the motion of a pendulum with a metallic bob. What is less commonly appreciated is the importance of controlling the influence of the beliefs, expectations, and biases of the test participants. Our beliefs, desires, and expectations can influence, often subconsciously, how we observe and interpret things. Tell people that someone is a holy person, and many take his or her pronouncements as great wisdom. People who believe a house has rats interpret the usual night sounds of the house as rat noises. A believer in UFOs is convinced that the brief appearance of a zig-zagging light in the sky is an alien spacecraft.

Scientists have beliefs and expectations about their work. Scientists are humans: They have professional egos, research projects to defend, and commitments to pet theories. While scientists often experimentally refute their own hypotheses and readily toss their theoretical failures into the trash bin, they sometimes strongly believe a hypothesis and truly hope it passes the test. Scientists usually have expectations about the probable success or failure of a hypothesis even in the absence of strong commitment or opposition. Most students know scientists have biases, and some students, perhaps influenced by the epistemological relativism of the New Age movement, conclude that science is no more objective than personal experience or mythology. They (and, I suspect, a good part of the general public) fail to understand that the presence of beliefs and expectations among scientists does not mean that scientific research itself is biased. Scientists are trained to work with experimental procedures that, by and large, prevent their beliefs and expectations from influencing experimental results. Bias cannot be eliminated from science, but it can be isolated.

When we speak of objectivity in science, we do not mean that scientists are completely free from bias; rather, we mean that good research utilizes experimental and data analysis procedures and standards that prevent biases from influencing the outcome of tests. Ideally, any personal beliefs the researchers have about the eventual outcome of the experiment should play no role in its outcome. Researchers with totally opposite preconceptions should arrive at the same results upon following the same procedures.

William D. Gray, author of the excellent book *Thinking Critically About New Age Ideas* (not to be confused with William Grey), recounts a particularly blatant example of the lack of bias control in a test of psychic powers that he personally witnessed. A psychic claiming telepathic powers was tested by allowing the psychic to sit across a table from an investigator who looked at a picture. The picture was held so that its content could not be seen by the psychic. The psychic had five minutes to describe or draw the contents of the picture on a sheet of paper.

To the nonscientist, this procedure might seem rigorous and objective enough, but in fact, it is not. It all depends on the type of pictures used, the procedures used by the psychic to demonstrate powers, and the criteria for judging the results. In this particular case, the picture to be "read" by the psychic was of a red automobile driving through a puddle of water and causing an outward spray of water from the wheels. The psychic was allowed to scribble anything and as much as he wanted. The psychic made good use of this leniency to scribble all sorts of things: circles, squares, straight lines, broken lines, curved lines, zigzags, other irregular forms, and also words such as white, black, anger, high, red, and happy. This strategy is called the "shotgun approach." If you're not sure of your target, fire at everything.

The investigators accepted this data-generation procedure and even found "evidence" in it of telepathic powers. A curved line was interpreted as an outline of the car, and the word *red* as indicating the car's color. A few lines in a radiating pattern was taken as indicating the water spray, even though these spray lines were not near the curved line supposedly representing the car. All these things were taken as successful hits, but all the rest, the other scribbling and words, were not counted as misses. Counting some elements as data and arbitrarily ignoring others is, of course, biased data selection. A more rigorous procedure would have specified beforehand what would count as hits and misses.

The interpretation of the selected data was equally biased: The curved line was taken as the outline of the car without any evidence that this is what the psychic intended it to be when he scribbled it. The ambiguous curved line could just as well have been interpreted as a camel's back, a water wave, a snake, or any number of objects. The word red was taken as indicating the color of the car without any supporting evidence that this was intended by the psychic. (Asking the psychic if this was so would hardly constitute a controlled procedure.) The so-called water-spray lines could also have been interpreted

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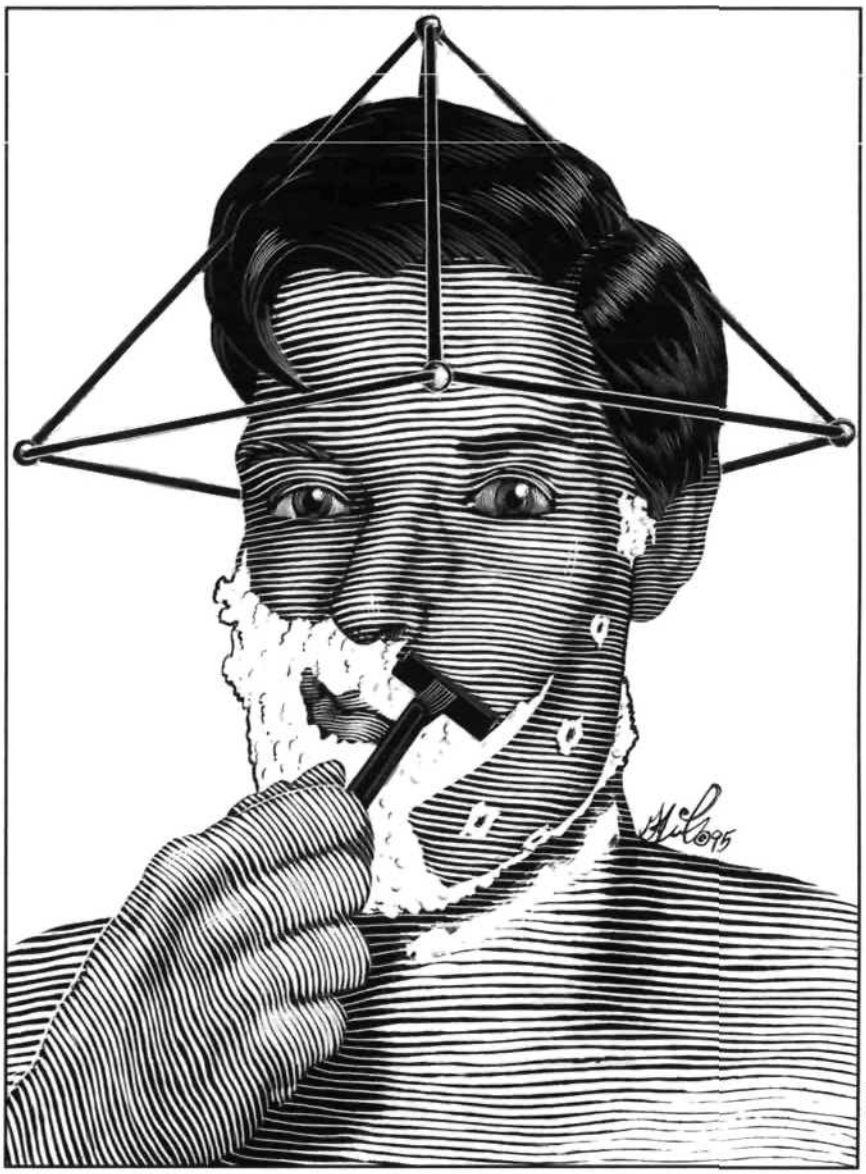
in other, equally plausible ways to be sun rays, fireworks, a flower, etc. Alternative interpretations of the ambiguous data were overlooked by the researchers because they were looking for certain forms in the figures, and the ambiguity of the figures provided the researchers room for projecting their own specifics. They read their own beliefs, their own preconceptions, into the data.

A more objective way to test for mental telepathy is to use Zener cards, which contain pictures of simple, unambiguous forms like a red ball, a green triangle, a wavy line, or a blue square; there is only one form per card. A psychic is told to draw only one form for each card, and is tested with 10 to 20 Zener cards. Criteria are established beforehand for deciding what counts as a hit, usually in terms of a certain degree of similarity between the psychic's drawing and the target form. With such testing procedures, psychics have persistently failed to demonstrate their alleged mental telepathic powers.

In addition to eliminating the influence of personal bias on experimental results, rigorous experimental procedures should also identify all other factors that could influence the results of the test. This is called "experimental control." I am personally familiar with a test that failed on both counts. It involves students, and I use it in my classes to illustrate the nature of objectivity and rigor in scientific tests.

A swap meet is held every weekend in San Diego. Occasionally, a vendor is there selling wire-frame pyramids. The vendor claims that the geometry of a pyramid channels cosmic energy to its interior, where it will preserve things such as fruit and the bodies of pharaohs, and will restore the sharpness of used razor blades. A standard chrome pyramid model is usually on display, but people of sufficient spiritual motivation and financial means could order silver- and gold-plated versions. It is claimed that the universal cosmic energy resonates best with gold, next best with silver, and adequately with chrome. Some time ago, two of my students, who did not know each other, purchased these wire-frame pyramids because of this alleged ability to sharpen used razor blades. The vendor told them that used razor blades become sharper after being left inside the pyramids for three days. One of the students believes in psychic powers and spirits, attends trance channeling sessions, and generally follows all the latest New Age fads. The other student is a skeptic who suspected he was throwing away twenty bucks.



Gerald Fried

Each of the students took his pyramid home and tested it with used razor blades. They first tried the old blades on their faces, then stuck them inside the pyramids for the specified time, and then tried shaving again with them. As he took some strokes on one of his cheeks, the psychic true believer thought something like, "Humm . . . why yes, I think it does feel sharper now!" The skeptic, however, decided that his old razor blade was the same as before. "What a waste of money," he concluded. So here we have a situation where two individuals tested the same hypothesis with the same procedure and got opposite results.

The reason is obvious: The procedure does not eliminate the influence of personal bias. The psychic true believer anticipated a sharper shave and then felt it, while the skeptic did not have any such expectation. The test procedure also failed to control other

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Culture-Bound Syndromes as Fakery

ROBERT E. BARTHOLOMEW

Oh, what a tangled web we weave,
when first we practice to deceive!

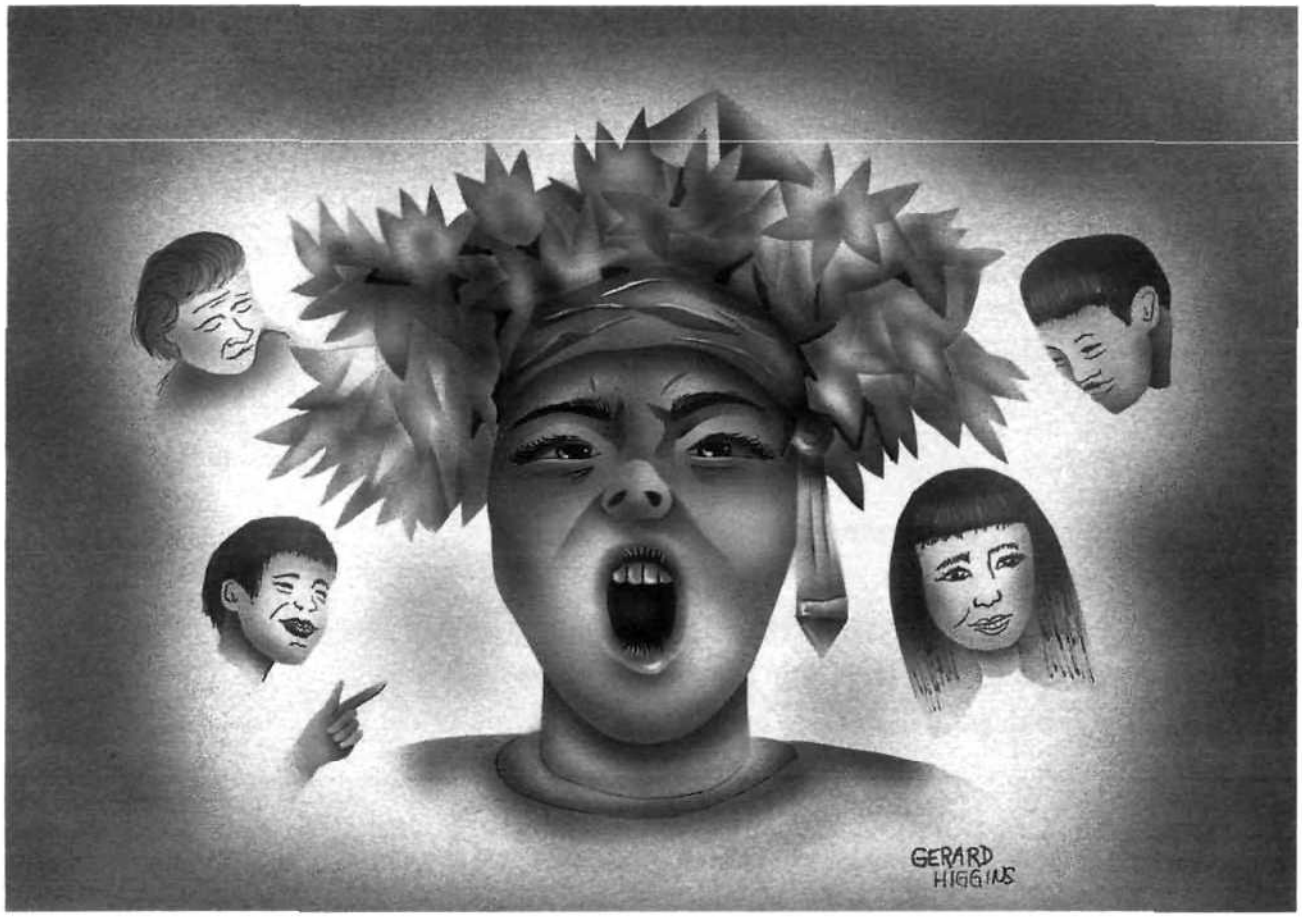
—Sir Walter Scott

. . . nearly all forms of deception are now accepted by the medical profession as a form of illness. Even where deception is recognised, as for instance in the confabulations of the Munchausen syndrome, this is attributed to previous mental trauma, or to some form of cultural disadvantage. The deceiver, always referred to as a patient, is said to be "disturbed"; he is regarded as a victim, not as a rogue (Naish 1979).

A Ph.D. . . . does not confer expertise in detecting trickery. Thus, they are just as vulnerable, if not more so, to the magic tricks of a [Uri] Geller, as are people who lack their scientific training (Hines 1988:92).

The curious and bizarre behavior known as latah has been classified as an exotic syndrome. But evidence indicates it is more likely to be a culturally based deception.

For the past one hundred years anthropologists and psychiatrists have debated the origin and nature of a curious behavior confined almost exclusively to the Southeast Asian neighboring cultures of Malaysia and Indonesia: Upon being startled, ordinarily timid, exceedingly polite women sometimes respond with vulgarities, obscenities, and outrageous sexual gestures. In severe cases, the women experience



Gerard Higgins

"automatic obedience," doing whatever they are told. Afterward they claim amnesia and are not held responsible for their actions. Episodes of this type last from a few minutes to several hours. Victims of *latah* are almost always middle-aged women of Malay and Javanese descent. It is rare among women of other nationalities (but such a case will be discussed later), even when they are neighbors of those experiencing latah. Scientists have been divided as to whether latah is a disease (Opler 1967; Rosenthal 1970); a disorder (Simons 1985, 1994; Howard and Ford 1992); or a form of symbolic cultural expression (Kenny 1978; Lee 1981). None of these explanations has been able to account for all of the characteristic features of latah, which is typically classified in medical textbooks as a culture-bound psychiatric syndrome.

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In January 1990, I married into an extended Malay family in which latah is prevalent, and gained the confidence of family members. While having no intention of studying latah—despite it landing literally at my anthropological doorstep—the more I observed, the more a number of contradictions became evident. Of 99 living female and male family members surveyed, 30 were classifiable as having "mild" latah and two as having "severe" latah, according to classic textbook definitions of the condition (Bartholomew 1994).

I first observed a severe case while attending my brother-in-law's wedding in the home of the bride's parents. I was astounded to observe my wife's shy, decrepit aunt, who had considerable difficulty even walking, intentionally startled by her elderly uncle. "S" suddenly leapt to her feet, lost all inhibition, and for the next 10 minutes followed each of her teaser's commands, mimicking his every gesture. During the episode, she was made to cry like a baby, perform *silat* (Malay self-defense), dance vigorously, and partially disrobe, all to the hilarity of the entire wedding party which crowded around her. She would occasionally improvise gestures, such as lifting her sarong in a sexually suggestive manner and utter the most repulsive words and phrases. Throughout the episode, after some outrageous display, she would immediately and profusely apologize for her vulgarity, then launch into another series of behaviors, apologizing more than 30 times during this particular "fit." The next day at a crowded wedding reception at the groom's home, I was able to tease her into a similar, less dramatic episode by suddenly slapping my hands onto the floor next to her. She responded with a 10-minute display, mimicking my every action, from dancing to slapping her face repeatedly. Other family members also joined in the teasing.

A few days later I visited "S" at her residence in the presence of two relatives. I startled her and she responded with a short vulgar phrase. Immediately thereafter, I slapped my hands on the floor next to her, exactly as I had done at the wedding reception, but there was no response. I slapped the floor, then my face, hard, but again there was no response. I was perplexed. Just a few days earlier in the presence of about 60 people, even minor startles would send her into prolonged "fits." At both parties she was sitting on the floor next to me, and I executed the same sequence—startling her, slapping the floor, then my face. Family elders later explained emphatically that unless there is a large social gathering, "severes" *never* exhibit anything beyond "mild" symptoms, responding only with an offensive word or phrase. They also report that "teasers" are always close relatives—ensuring that the "victim" does not do anything too outrageous, such as responding to a request to stab someone with a knife.

Over the course of a month, I observed "S" teased into 10-minute "fits" at other weddings where she sat in the main crowded room of the groom's house, despite claiming to dread being teased. If "S" genuinely feared teasing, she simply could have told family members not to tease her, avoided wedding crowds, or visited privately instead of prancing onto center stage. I asked her, "If you suffer amnesia during 'attacks,' how can you apologize if you are unaware of your actions?" She had no explanation.

University of Washington psychiatrist Ronald Simons is the leading proponent of the theory that latah is a universal human disorder to startle in response to fright, akin to Westerners swearing in response to fright. The reactions vary according to cultural conditioning. Simons takes subjects' explanations at their face value, assuming their truthfulness in claiming their behavior is involuntary.

I was surprised to learn that "S," who would commonly drop and throw objects while in a state of latah, was frequently allowed to cradle babies in her arms, with a perfect record of holding onto them! Since there are many "severe" cases in Malaysia, one wonders why there are no newspaper headlines: "Another Malay Drops Baby!" or "Latah Claims Two in Yet Another Car Mishap." While claiming to hate being "teased," the "victim" and onlookers seem to heartily enjoy it. This denial of self-control is necessary for the perpetration of the latah deception since it "sets the stage" for the ensuing performance which allows for the violation of Malay norms. The subject enjoys complete immunity from blame. What "victim" can willingly invite the latah condition since it would be tantamount to admitting that they enjoy violating strict taboos? If her protestations were genuine, mothers, sons and grandchildren would certainly not torment their elder loved ones, who are always treated with the utmost dignity and respect in Malayo-Indonesian culture. From this perspective, the latah startler unwittingly serves as a coach, orchestrating and dictating the subject's responses.

This ritual also allows for the release of individual expressions. While the subject is required to perform the coach's choreography, the foul language and obscene body gestures are improvisations by the latah performer. The performance is almost always terminated by both physical and verbal cues that the subject is tired. In this ritual of deception, family members recognize the latah subject is not ill. But they do believe they have temporary and complete control over the subject's mind, and are careful to keep knives and other sharp objects away from subjects during latah episodes.

"I was surprised to learn that 'S,' who would commonly drop and throw objects while in a state of latah, was frequently allowed to cradle babies in her arms, with a perfect record of holding onto them!"

A Dubious History

Latah has been an enigmatic "ailment" in that its classification has curiously eluded a number of competent researchers. In fact, in the *American Handbook of Psychiatry* (Arieti and Brody 1974) it is placed under "Rare, Unclassifiable, Collective, and Exotic Psychotic Syndromes." To date, outsiders have been able to catch only glimpses of the mysterious world of latah. They have noted considerable difficulty gathering detailed case histories from informants, as has the late, prominent cross-cultural psychiatrist P. M. Yap (1952), despite his fluency in the Malay language. Kenny (1985) remarked that only a single case of latah has been observed and studied in sufficient context and depth to provide some insights into the processes involved—that reported by Australian anthropologist Clive Kessler (1977). Coincidentally, the woman in this case study possesses a marked histrionic personality.

Exhibitionism best fits the evidence, explaining why latah is not considered an illness by participants and their families, the reluctance of informants to provide detailed information, observations that most subjects are described as clever (Fitzgerald 1923; Murphy 1973), and the conspicuous absence of any sign of mental abnormality outside of episodes. It explains latah's almost exclusive restriction to lower-class women and servants, and their conspicuous tendency to startle in the presence of higher status peers (Geertz 1968; Murphy 1976; Kessler 1977).

It has been observed that "severe" subjects typically lead solitary and reclusive lives to avoid being teased (Langness 1967:149). Yet, it is equal-

ly plausible that these subjects become performers *because* they are lonely and desire attention. Previous observers have presented primarily anecdotal evidence that the onset of severe symptoms coincides with depression, financial dependence, and loneliness following the death of a close family member (Yap 1952; Chiu, Tong and Schmidt 1972; Kenny 1978:210). Some anthropologists even argue that latah symbolizes the plight of such people and is a means of conveying to others that something is amiss (Kenny 1978).

"S" first exhibited severe symptoms at public gatherings within a few months after the death of her daughter, followed in close succession by the death of her husband. She was unemployed, in social isolation, and dependent on her surviving children for support. Researchers have focused their attention on the conditions likely to prompt latah, largely ignoring the question of the conditions under which people are likely to feign or exaggerate latah for attention. It is notable that two other family members were in virtually the exact social circumstances as "S" following the deaths of their husbands. Both of these "mild" subjects experienced latah slightly longer than usual. They explained latah as an unconscious means of relieving emotional stress and perhaps an unconscious means of getting attention. Yet, neither became "severe."

It cannot be overemphasized that "severe" latah behavior is exceedingly rare, even in Malayo-Indonesia.[1] Colson (1971) identified five cases in a Malay village of more than 400 residents; Resner and Hartog (1970) stated that traditional Malay villages usually have but one case, while Chiu et al. (1972) located only 69 cases out of a sample of 13,219 East Malaysians. One reason researchers have chosen to downplay the obvious exhibitionistic nature of "severe" cases are reports that it once affected the majority of the populations of Malaya and parts of Indonesia (Van Brero 1895; Clifford 1898). Scientists reasoned that large numbers of inhabitants could not be feigning; therefore it must possess some unconscious ritualistic or symbolic quality. Hence, while Yap (1952:537) was convinced that latah is a mental disease of hysterical dimensions, he remarked, "It is often difficult to separate the genuine cases from those which are basically histrionic and exhibitionist in nature." Malaysian psychiatrist Eng-Seng Tan made a similar observation. Like Yap, Kiev (1972) and Murphy (1976), each assumed that this behavior characterizes hysterical and dissociative aspects of latah, especially since most "victims" are female:

> Although there has not yet been any systematic scientific study of the latah phenomenon from a psychological viewpoint, the hysterical nature of the condition is inescapable to the psychiatric observer. The condition invariably occurs in the presence of an audience, the behavior of the subject has a marked theatrical quality about it, often provoking spasms of laughter among the audience, and the subject pleads amnesia for her buffoonery when she comes out of her altered state of consciousness (Tan 1980:380).

Upon closer scrutiny, the argument dissolves that latah cannot be fraud due to its pervasiveness. "Milds" do not consider themselves to be suffering from a disorder. Upon explaining to family members the common psychiatric definition of "mild," I was told "everyone is a little latah." There is no evidence that "severe" cases were any more common in the previous century than they are today. Its habitual form persists in certain families, although it has no major social significance, except as a prerequisite for performers to emulate and elaborate. "Mild" latahs simply respond to startle in a manner comparable to Western swearing. There is no exaggeration, mimicking, amnesia, or involuntary expression. Then how is its appearance in women explained? In its "mild" form, latah is an infrequent habit formed almost exclusively by post-pubescent females in certain Malay households with cultural traditions of emulating behavior of elders. Since it is considered a feminine trait, most males do not engage in the habit, but if they do, it is infrequent and typically denied. In a similar vein, smoking cigarettes once was considered a solely masculine trait in Western society, and women who smoked usually denied it. The view of "mild" latah as habit is consistent with Murphy's (1976) observations of enigmatic behavior: The condition was extremely rare in Malayo-Indonesia during the first half of the seventeenth century; reported on every street and common among men by the 1890s; scarce during the 1920s; and diminishing in frequency today and almost exclusive to women.

The status of latah as a medical disorder is reminiscent of social scientists' attaching medical labels to other habits and fashions. Penrose (1952) considered the use of the yo-yo and crossword puzzle to cause a mild form of crowd disorder. Child psychiatrist W. Burnham (1924:337-38) made a similar evaluation of the brief "craze" in Worcester, Massachusetts, during the early part of this century, of people tickling each other with feather dusters. American psychiatric pioneer Benjamin Rush (1962 [1812]) classified lying as a disease.

Recently, psychiatrist Jack Jenner (1990, 1991) reportedly discovered seemingly indisputable evidence that

"She would immediately and profusely apologize for her vulgarity, then launch into another series of behaviors, apologizing more than 30 times during this particular 'fit.'"

latah is an abnormality of the human startle mechanism that varies with cultural conditioning. He treated a 40-year-old Dutch woman in Holland who would swear profusely, become abusive, and act oddly upon being startled. He claimed the subject has no ties to Malayo-Indonesian culture, and yet, it is an amazing coincidence that this sole documented case of severe latah occurred in someone from a culture far away from, but with a significant population of Malaysians and Indonesians,[2] both Asian countries having been Dutch colonial outposts for centuries. In fact, the Dutch only agreed to lift sovereignty over Indonesia in 1949. Jenner's case study notes that his patient startled several times daily for 20 years, yet had not sought help. Her husband became so irritated he sought psychiatric assistance. She was successfully treated with "flooding" therapy, consisting of her husband and son startling her dozens of times daily. Unanswered are such fundamental questions as to whether the woman had Malaysian or Indonesian companions—an excellent likelihood given their presence in Holland—or if she was previously aware of latah. Jenner (1990) curiously noted that startling was often used by the woman to avoid household chores; get her way in deciding holiday destinations; and serving as "her most effective weapon in marital conflicts." A fraud perspective is equally plausible and best conforms to historical and contemporary evidence. I would argue that upon commencement of the "flooding" therapy, the subject rebelled, intensifying her malingering to demonstrate the ineffectiveness of treatment. Upon realizing the determination of her husband, son, and psychiatrist to continue this strategy, "symptoms" then rapidly disappeared and never returned.

Double Standards

There are numerous historical precedents for malingering for social gain, or institutionalized feigning. Anthropologist Michael Kenny contends that "severe" latah subjects do not enter an altered state of consciousness, but are engaged in latah "performance" and "theater" (Kenny 1978:209). Never are the words "fraud," "fakery," or "deception" used. Yet anthropologists appear guilty of employing double standards. A number of researchers have exposed fakery and deception in group settings: the Salem witch trials of 1692; spiritualism during the early twentieth century; epidemic demonic possession in medieval European nunneries; and channeling associated with the contemporary New Age movement. However, anthropologists and psychiatrists tend to use different language in scrutinizing similar non-Western traditions. When studied, Western faith healers are often viewed as fraudulent. But place an exotic label on essentially the same behavior involving shaman in some African tribe and anthropologists are quick to point out the "symbolic" qualities. Yet, there is also symbolism in fraud, quackery, and channeling. Carlos Casteneda's fictional writings contain a seductive, adventurous quality that was ideal for captivating popular American culture during the sixties and seventies, blending mysticism, psychedelic drug use, and a belief in paranormal and supernatural powers (Hines 1988:277). The discovery in 1971 of a "stone age" tribe in the Philippines captured the imagination of the world due in large part to its ultrapacifist symbolism—a community of "noble savages" living in unspoiled isolation from the decadence of twentieth-century civilization (Sponsel 1990). The media heavily touted the claim that these *Tasaday* people did not even have a word for war. This was later uncovered by Iten (1986) as a hoax after gaining access to their restricted preserve and finding the so-called lost tribe "living in houses, wearing Western clothing and saying they had faked the whole thing" (Willson 1989:18). The conspiracy was apparently perpetrated by the government of Ferdinand Marcos, then president of the Philippines, in order to deceive the world for political and economic gain (Dumont 1988).

Social scientists do an injustice by using such words as "malingering," "histrionic," "performance," and "symbolic action" in describing attempts to achieve social gain in the absence of an organic illness. Stripped of these euphemisms, all too often the underlying content involves conscious deception for personal gain. The entire notion of the perpetration of fraud in non-Western cultures needs to be reevaluated regardless of whether the perpetrators express a belief in their power to heal. In this regard, culture-bound idioms of deception are couched in legitimate scientific terms.

Anthropologists have an unfortunate tendency to emphasize, idolize, and glorify the exotic, especially in someone else's backyard, while psychiatrists are often overly eager to place a convenient "disorder" or "disease" label on deviant or deceptive behavior, no matter where it is found. This is also true of misperceptions involving people whose perceptual orientations are conditioned by pseudoscientific books and media programs purporting the existence of mysterious creatures. When a community experiences a spate of Bigfoot or flying saucer sightings, it is typically labeled as a form of "epidemic hysteria," yet this behavior is not infectiously contagious and participants are not clinically hysterical.

Another culture-bound "syndrome" is that of "group spirit possession," which, like latah, almost exclusively

"'Severe' subjects typically lead solitary and reclusive lives to avoid being teased. Yet, it is equally plausible that these subjects become performers because they are lonely and desire attention."

affects female Malays. Labeled by scientists as stressed-induced "mass hysteria," episodes of screaming, crying, and claims of possession have plagued Malaysian schools and factories since the resurgence of Islam in Malaysia in the early 1960s. In a country where Malay women do not enjoy equal rights and unions are discouraged, such "outbreaks" allow for the protest of undesirable actions or rules from managers and school principals. Anthropologist Aihwa Ong (1987) shows how "epidemic hysteria" in Malaysian factories is a form of political resistance. Lee and Ackerman (1980:79) also document how Malaysian "hysterical epidemics" are utilized in typically restrictive Malay female religious hostels as a form of negotiation in drawing attention to a particular problem. In summarizing the characteristic presentation of complaints by the females in Malaysian schools, Teoh (1975:302) notes a "monotonously similar" pattern: "One or two of the subjects in an altered state of consciousness acted as the mouth-piece on behalf of the group, ventilating their many frustrations and discontentments. The girls characteristically took hints and cues from each other and afterwards claimed amnesia for the episodes." While a tiny fraction of subjects may enter trance states, the vast majority are clearly playacting in a type of "ritualized rebellion" for political gain.

Fraud and deception take many culture-specific forms—from the attention-seeking poltergeist antics of Western children, to the use of chicken blood and sleight of hand during "psychic surgery" by shaman. Latah is one more example.

Notes

1. Anthropologist Michael Kenny of Simon Fraser University in British Columbia argues persuasively that in the few scantily documented groups where latah behavior is reported to occur, such reactions result from social and not biological influences. While accepting the possibility of a universal startle reflex, he considers it irrelevant to understanding latah. Thus, while all people are born with hands, "only some cultures have exploited the fact in requiring them to be shaken in formal greeting" (Kenny 1985:74). Since latah behavior is often dramatic and thus likely to elicit comments by both scientists and lay persons, the scarcity of accounts prior to the nineteenth century, when the illness category was first devised by Western medical practitioners, is a conundrum (Murphy 1973:43).

2. According to the *Worldmark Encyclopedia of the Nations* (1984), more than 2 percent of Holland's population is composed of repatriates and immigrants from Indonesia.

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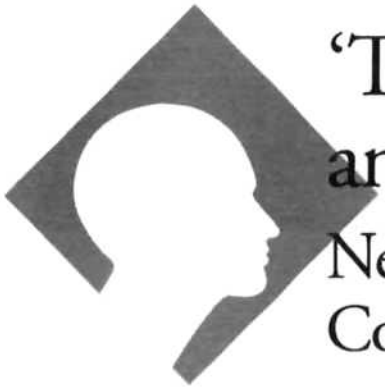

'The Flight from Science and Reason':

New York Academy of Sciences Conference Airs Issues

ETIENNE RÍOS

In reaction to increasing antirational and antiscientific rhetoric in academia, the New York Academy of Sciences assembled a diverse group of scientists and scholars to examine the origins and explore the ways in which this phenomenon could be properly combatted. The conference, titled "The Flight from Science and Reason," took place May 31 to June 2, 1995, in New York City. This was one of a series of meetings routinely convened by the academy focusing on pertinent issues involving science.

The aim was to "consider the contemporary flight from reason and its associated antiscience, its denial of even the hope of objectivism, and its relativist rejection of Enlightenment ideals." The discussion included an impressive range of subjects.

The consensus of the presenters was that science-bashers come from all walks of academia. The usual culprits of anti-intellectualism, namely radical feminism (including notions of female science and male science), radical environmentalism (an unwillingness to look at opposing evidence), and social constructivism (knowledge is considered a product of the social, political, and historical pressures of the times rather than of objective truth), are joined by New Ageism and psychoanalysis in what is considered to be an attempt to debase rationality. Setting the tone for the meeting, Paul Gross, coauthor of *Higher Superstition* and conference chair, said the irrationalists' attacks on science threaten the effective maintenance of "liberal values." He characterized these attacks as "vulgarizations" and later described them as "half-truths and quarter-truths told as total truths."

A running theme was that of the motives behind the postmodernist (antiscience and antireason) claims. James E. Alcock, a Fellow of the Committee for the Scientific Investigation of Claims of the Paranormal, and a psychologist from York University, in Toronto, contrasted what he calls "the scientific-humanist belief system" and the "transcendental belief system." He said the former must be taught to people for an appropriately high degree of scientific literacy to be achieved.

Others pointed to the politically induced motives behind antirational rhetoric. CSICOP Chairman Paul Kurtz considered that the latest upsurge in antiscientific sentiments, along with the rise in religious fundamentalism, could very well translate into new antirational political trends. To further cultivate a rational democracy, he recommended conveying to the public an appreciation for the scientific outlook and methods of science.

Noretta Koertge, from Indiana University, Bloomington, provided a description of the constructionist approach, in which reality is seen as a result of social consensus. Koertge pointed out that some constructivists deem that some findings by science—even if true—are too socially or politically dangerous to publish, or even to study in the first place.

Various speakers discussed the possibility that behind much of antiscience and antirationalism there is an ultra-egalitarian willingness to endow validity to each and every belief, for the mere fact that it is believed with such fervor. Wendy Kaminer, author of *I'm Dysfunctional, You're Dysfunctional,* illustrated how the intensity of a belief is frequently taken as evidence of its truth. These proclivities are instrumental in forming what she called "perfectly closed belief systems."

Mario Bunge, noted philosopher from McGill University, Montreal, suggested an antidote to antiscience—teaching that ignorance can be overcome by research. Bunge, a CSICOP Fellow, considers postmodernism a form of intellectual dishonesty. He and others forcefully maintain that postmodernists have not earned the academic freedom they are currently enjoying. He regards their musings as shal-

low and inherently antiacademic, in that they do not recognize the duty of scientists to question in a rational manner. Gerald Holton, a physicist at Harvard University, vigorously reprimanded university professors at large for displaying what he termed a *negligent acquiescence* in the face of postmodernist attacks on science.

Antirationalists typically point the finger at instances of scientific fraud to underscore their allegation that science is just as fallible as any other human endeavor. Their mission is to show that science is not without bias. Criticisms like these, Paul Gross remarked, are trivial, and not original. David L. Goodstein, from the California Institute of Technology, who was responsible for preparing Caltech's guidelines on scientific fraud, stressed that fraud is an anomaly in science. Further methodological considerations were touched upon later by Rutgers University anthropologist Robin Fox, who stressed that it is method, not subject matter, that ultimately defines science. This method, he argued, is itself the antidote to its misuses. When social relativists and postmodernists point to instances in which scientific knowledge has been put to detrimental uses, or in which it has been biased, "they miss the point," Fox states; those critiques should instead be addressed at the misuses of science. Conference lecturers were unanimous in saying that the validity of science goes beyond these objections. Social relativism, Fox said, is tantamount to a confession of intellectual powerlessness.

Historical considerations, on which many pseudointellectual claims are based, were also explored. Mary Lefkowitz, scholar at Wellesley College, exposed the constructionist influence in Greek and Latin history. For some time now, she said, some constructivists have contended that the great ideas in Greek philosophy and even works of literature were stolen from the Egyptians. Lefkowitz persuasively showed how these pseudohistorical claims have no basis in any reliable historical research. One example is a claim found in George M. James's *Stolen Legacy,* a classic among Afrocentric writers. James claims that Aristotle stole books from the Library of Alexandria. Lefkowitz correctly points out that the library was not around until after the Greek philosopher died. "Ancientness itself," in many cases, "is by default taken to be evidence for the claim's veracity," she said. Lefkowitz concluded, not surprisingly, that all too often the contents of pseudohistory are more an indication of what best suits the proponents' cultural agenda.

Bernard Ortíz de Montellano, from the department of anthropology at Wayne State University, Detroit, called for a better education not only of students, but also of elementary school teachers. It is elementary school teachers, he said, who often see themselves pressured to give in to political and cultural motives meant to veer the school curriculum in certain directions. He said those teachers often do not have the necessary tools to fight off such pressure.

Paul Gross and Norman Levitt field questions at the New York Academy of Sciences Conference, 'The Flight from Science and Reason.'

Feminist (or gynocentric) epistemology constitutes much of the antiscientific entourage of ideas, according to Koertge. She said that in many cases students find that they are more able to survive professionally in academia by adopting radical feminist viewpoints. She said senior advisors and others in positions of power often encourage them to take the radical feminist position, something she said she has seen firsthand. Koertge said it is everybody's job to fight this "nonsense"; it should not be up to just females, in the case of radical feminism, or blacks, in the case of Afrocentric studies, or homosexuals, in the case of gay and lesbian studies.

Christina Hoff Sommers, author of *Who Stole Feminism?,* discussed Carol Gilligan's 1982 book *In a Different Voice: Psychological Theory and Women's Development,* which concerns the alleged different ways in which women deal with moral dilemmas. Gilligan contends that women have purportedly superior styles of cognition. Hoff-Sommers, from Clark University, Worcester, Massachusetts, exposed the book's methodological problems and faulty conclusions. She says legitimate research does not bear out the book's claims. She dubbed the book "a landmark in advocacy research."

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The antiscientific attitudes of postmodernists stem in great part from their mistrust of medicine and what they consider to be an immense amount of hubris in physicians. Gerald Weissmann, from the Department of Medicine at the New York University Medical Center, extolled the virtues of medicine and gave specific examples of ways in which medicine has contributed to humanity.

The area of militant environmentalism is another hub of antiscientific sentiments. Often, as Stanley Rothman, of Smith College, illustrated, the statistics stated in support of environmental claims are biased to reflect the interests of the environmentalists. He singled out the Environmental Defense Fund as an agency that, in his opinion, is not relied upon much by scientists. Martin W. Lewis, from the department of geography at Duke University, likewise said radical environmentalists often distort evidence. For radical environmentalists, Lewis said, "[Postmodernist] catastrophic claims are as valid as more scientifically based claims . . . but even more so because they're morally grounded." Lewis considers that this taking of a moral high ground only makes radical environmentalists more reticent to accept any evidence contradicting their beliefs.

"The latest upsurge in antiscientific sentiments, along with the rise in religious fundamentalism, could very well translate into new antirational political trends."

The panel discussing quantum mechanics said it is incessantly pointed to by antirationalists yearning to have a basis for their particular brand of relativism. Given the supposedly mystical and reportedly subjectivistic implications of quantum mechanics, postmodernists are wont to point out that in light of quantum phenomena, science itself defeated its pretensions of objectivity and materialism. They claim that objectivity is difficult, if not impossible, to maintain now that quantum mechanics has shown that there is no such thing as an external world, and that we ourselves make our own reality. They said such claims are totally inappropriate.

Norman Levitt, from Rutgers University, and coauthor of *Higher Superstition,* said quantum mechanical descriptions about the behavior of particles deal mainly within the scope of probability. The sometimes convolutedness of probabilistic computations may often give enigmatic results and, what is even worse, may appear mystical to the untrained. The results may sometimes *seem* mystical, but Levitt emphasized that with the appropriate background in probability theory, they are the product of straightforward calculations. "Many claims" [of the postmodernist-esoteric kind], he said, "come from those who do not have an appropriate training in mathematics." He said, "This mathematical naiveté is the main factor behind ungrounded assertions about theories in physics, for instance, chaos theory, relativity, and quantum mechanics. The physicists at the conference speaking on this point held that these physical theories, to the contrary, offer compelling support for objectivity.

In an evocatively titled presentation "Imaginary Gardens with Real Toads," Harvard chemistry professor Dudley Herschbach launched into an exploration of the many instances in which science dwells on the fanciful. The winner of the 1986 Nobel Prize in chemistry related his experiences being part of a PBS television show whose purpose was to present a stimulating portrait of science, exalting its aesthetic and inspiring attributes. The producers of the show, "The Nobel Legacy," chose to intersperse the broadcast with adversary "soundbites" by Anne Carson, of Emory University, Atlanta, a known critic of science. Herschbach regretted that he did not get to meet Carson. He said an actual dialogue between them would have been excellent for the show, and an even better opportunity for the audience to watch the proponents of both opposing views debating.

Psychoanalysis, developed by Sigmund Freud, was explored as an irrational contribution to modern thinking and health care. Because psychoanalysis has been fashionable for so long in academic circles, it is easy to consider it as a part of the establishment. Despite the impression among some academics and medical specialists that it is long dead, and hence they do not have to concern themselves with it, psychoanalytic theorizing is alive and well. Psychologist Frederick Crews said Freudianism is more prevalent in teaching than all other speculations we might term antirational. Crews, a University of California, Berkeley, professor said many of the psychoanalytic concepts were borrowed from Friedrich Nietzsche. He said that Freud's originality was minimal, and that Freud's few original points are either gratuitous or plainly erroneous and not supported by evidence. [See Martin Gardner's column in this issue.] Crews depicted psychoanalysis as a "morale booster." He pointed to the evangelistic character of Freud's discourse and added that psychoanalytic theory lacks rigor, tolerates self-contradiction, and is based on pure cogitation.

Dissenting comments from the audience were at times heard. Several science critics, voicing their discontent, said their views were not properly portrayed by the speakers. Audience members frequently complained of what they considered to be the unfair omission of the "other side" in the formation of discussion panels. Paul Gross repeatedly addressed this objection by stating that the rationalists are the besieged group. Moreover, he insisted, the antiscientists hold their own conferences without ever inviting the opposing side. □

Will the Real Pseudoscientists Please Stand Up?

SCOTT O. LILIENFELD

Pseudoscience in Biological Psychiatry: Blaming the Body. By Colin A. Ross and Alvin Pam. John Wiley and Sons, New York, 1995. 294 pp. Hardcover, $39.95.

In psychiatry, as in many other disciplines, the pendulum has periodically swung between two theoretical poles. In the 1950s, 1960s, and early- to middle-1970s, the prevailing view was that most mental disorders were almost exclusively a product of family and cultural factors. As recently as 1979, I can recall learning in an undergraduate psychology course that infantile autism was entirely a consequence of aberrant parenting practices. There is now convincing evidence that infantile autism is influenced substantially by genetic factors. Over the past two decades, psychiatry has progressively undergone a dramatic paradigm shift characterized by increasing emphasis on the biological underpinnings of psychopathology.

In *Pseudoscience in Biological Psychiatry: Blaming the Body*, Colin A. Ross, a psychiatrist, and Alvin Pam, a psychologist, contend that the pendulum has swung too far toward the biological end of the spectrum. Ross and Pam, along with several other contributors to this book, believe that contemporary biological psychiatry is beset by a host of flawed theoretical assumptions, dubious methodological practices, and errors in deductive logic. Their overarching theme is the fallacy of "biomedical reductionism": the doctrine that psychological phenomena can best be understood by reducing them to their underlying physiological components.

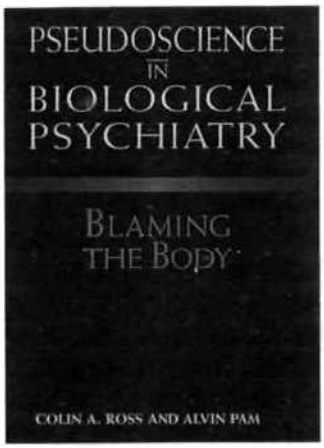
In their frontal assault on modern biological psychiatry, Ross and Pam emphasize three errors in logic that, they maintain, are exceedingly prevalent in this field. First, they underscore the often overlooked distinction between biological *mediation* and biological *etiology*. Many researchers in contemporary psychiatry, they note, have made an improper inferential leap from biological correlation to biological causation. For example, the finding that schizophrenia is often characterized by enlarged cerebral ventricles does not, as some writers have assumed, demonstrate that schizophrenia is caused by physiological abnormalities. This finding might instead be a consequence or concomitant of a disease process set in motion by psychological factors (e.g., stress). With the exception of mind-body dualists, all researchers accept the premise that the "mind" is really the brain in action. Therefore, it goes without saying that schizophrenia is correlated with physiological abnormalities, because all behaviors are mediated by biological processes. Such abnormalities are not necessarily relevant, however, to the cause(s) of the disorder.

Second, Ross and Pam criticize the *ex juvantibus* (reasoning "backwards from what works") logic of using findings from treatment studies of mental disorders to draw inferences regarding their etiology. As Pam points out, even the most hardened biological reductionist would surely not invoke the finding that aspirin is effective for headaches to argue that headaches are a consequence of aspirin deficiency. Nonetheless, some biological investigators have made precisely this error when interpreting the results of treatment studies. For example, some researchers have argued that because bulimia, panic disorder, and obsessive-compulsive disorder often respond positively to antidepressants, all of these conditions must comprise an "affective spectrum" characterized by underlying commonalities to depression. Because treatment data have little direct bearing on etiology, however, the response of these conditions to the same medications provides relatively feeble corroboration for the existence of this spectrum.

Third, Ross and Pam decry the frequent tendency to conclude that a disorder must be influenced by genetic factors if it tends to run in families. Studies

of intact (i.e., nonadoptive) families are indeterminate with regard to genetic versus environmental transmission, because biological relatives in these families share both genes and environment. It is this indeterminacy that makes designs using adopted children, which permit investigators to disentangle genetic from environmental influences, so valuable as inferential tools.

Had Ross and Pam been content with raising these three issues and elucidating their implications for psychiatric research, *Pseudoscience in Biological Psychiatry* might have made a useful contribution. But the authors elected not to stop at this modest goal. They go on to offer their own hypotheses concerning the etiology of mental disorders and provide methodological critiques of various studies in the biological psychiatry literature. It is here that the book flounders.



Indeed, what is particularly disconcerting about *Pseudoscience in Biological Psychiatry* is that its authors repeatedly fall into many of the same logical traps for which they reprimand their colleagues. In this respect, one cannot help but be reminded of Richard Feynman's remark concerning many scientists' failure to generalize concepts across situations: "Their knowledge is so fragile!" For example, the ex juvantibus logic of inferring etiology of treatment is criticized whenever this logic buttresses the conclusions of biological psychiatry but is invoked whenever this logic calls these conclusions into question. For instance, with regard to the finding that medications often work for disorders other than those for which they were developed, Ross avers:

> One conclusion biological psychiatrists could draw from the fact that one medication works for many different disorders is that there is no biological specificity to different psychiatric disorders. Because this threatens the one gene-one illness model of biomedical reductionism, that conclusion is disallowed (p. 93).

Here Ross himself commits the ex juvantibus error by interpreting the lack of specificity of drug effects for mental disorders as casting doubt on the specificity of their etiologies.

In addition, Ross hypothesizes that a childhood "trauma model" provides a powerful unifying framework for the etiology of psychopathology. He asserts definitively that "chronic childhood trauma is the overwhelming major driver of psychopathology in Western civilization" (p. 122) and that multiple personality disorder has been shown conclusively to be a "dissociative response to childhood trauma" (p. 121).

The evidence Ross adduces in support of these claims is that child abuse tends to co-occur with various mental disorders within families. But here Ross falls prey to the same error that he accuses biological psychiatrists of making, except that in this case he assumes that because child abuse co-occurs with psychopathology in families, this association must be environmental. It is conceivable, however, that the association between child abuse and certain mental disorders is mediated by genetic factors: Child abuse may in some cases be an expression of a genetic predisposition toward certain personality traits, such as impulsivity or aggressiveness, that are transmitted from parent to child and that, in turn, increase children's risk for similar mental disorders. This alternative explanation, which is barely mentioned in the book, is summarily dismissed on ethical rather than scientific grounds, as it is said to invite the use of "eugenic" interventions "involving genetic engineering" (p. 140). Here again, the inconsistency of the authors' reasoning is apparent: Just as treatment does not imply a particular etiology, etiology does not imply a particular treatment.

Similar logical errors can be found in Pam's chapter on research methods, in which findings demonstrating that children of parents with psychopathology are themselves at heightened risk for psychopathology are regarded as persuasive evidence for an environmental hypothesis. The authors claim: "The genetic basis of schizophrenia has not been scientifically established, even at a preliminary level" (p. 106), even though the studies they cite in support of environmental etiology rest on far more precarious methodological footing than the twin and adoption studies of schizophrenia whose results they discount.

The problems of *Pseudoscience in Biological Psychiatry* do not end here. Although the authors repeatedly inveigh against biomedical reductionism, they never articulate their logical objections to this doctrine. Indeed, although "reductionism" has become a dirty word in many quarters, the standard arguments against it have often been less than convincing. The traditional objection to reductionism has been that mental phenomena cannot be reduced to more elemental components without a significant loss of information, because these components combine to form "emergent" properties—higher-level properties that are not reproducible from the sum of their lower-level parts. As Patricia Churchland has pointed out, however, there is little evidence for the existence of emergent properties in neural systems. Such issues are never mentioned in *Pseudoscience in Biological Psychiatry*, let alone accorded the thoughtful discussion they deserve.

In many cases, the book's coverage of the literature is spotty and selective. With the exception of a single paragraph (p. 260), there is no mention of the problems associated with interpreting "recovered" memories of child abuse, despite the book's emphasis on child abuse as a major etiological factor in psychopathology. Such an omission might be forgivable in a book published in 1975 or even 1985, but not in

1995. Moreover, although the authors criticize the "if it runs in families, it must be genetic" error, they neglect to discuss the burgeoning evidence from twin and adoption studies that shared environmental factors—those that make family members similar to one another—appear, with a few exceptions, to play little role in the etiology of either personality or psychopathology. Environment clearly matters, but the environmental factors that are most formative in the development of normal and abnormal personality appear to be those that make family members different from, rather than similar to, each other.

Finally, one of the weakest aspects of the book is its treatment of statistical issues. The authors use such terms as *suppressor variables* (p. 59) and *meta-analysis* (p. 86) incorrectly, commit some outright bloopers concerning the effects of sample size on statistical significance (e.g., p. 178), and recommend the routine use of procedures (e.g., Bonferroni correction for multiple statistical comparisons) that substantially increase the likelihood of concluding erroneously that a genuine difference between subject groups is absent. Although such conservative procedures can be useful for some purposes, they are ill-advised for the type of small-sample studies cited in the book, which are already biased strongly against detecting group differences. After reading *Pseudoscience in Biological Psychiatry*, I was left to ponder a somewhat uncomfortable question: Now that the policers of pseudoscientific thinking in biological psychiatry have arrived on the scene, who will police the policers? □

Scott O. Lilienfeld is an assistant professor of clinical psychology at Emory University in Atlanta.

Who Says Skepticism Must Be Stuffy?

PETER HUSTON

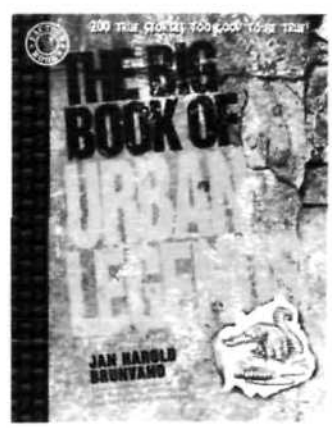
The Big Book of Urban Legends: Adapted from the Works of Jan Harold Brunvand. By Robert Fleming and Robert F. Boyd, Jr. Paradox Press, Division of DC Comics, 1325 Avenue of the Americas, New York, NY 10019. 1994. 223 pp. Paper, $12.95.

About the time I became excited by skepticism and the SKEPTICAL INQUIRER I stopped collecting comic books. My main reason for dropping the comics was simple: I had grown weary of the convoluted histrionics of a bunch of implausible superheroes and the maudlin mishaps of world-saving teenage mutants who ran around in long underwear. If comics had been a bit more interesting and a bit more mature (in a nonsexual way), as they are in Europe, then I probably would have accepted them on their own terms and stayed with them the same way I still enjoy other, less sophisticated forms of pop culture, such as television.

As for the skeptical literature, it often has its faults, too, but content is usually not among them.

One fault is that the bulk of skeptical literature lies at the other end of the spectrum from comics, and therefore lacks appeal for the people who need it the most. Nevertheless, the contents are so engrossing that I stuck with skeptical literature. I eagerly soaked up as much of the hard-to-find explanations for strange claims and unusual phenomena as I could. But I never once thought of the obvious solution to bringing together comics and skeptical literature. Skeptical Inquirer Comics!

Authors Robert Fleming and Robert F. Boyd, Jr. also came up with this excellent idea and Paradox Press put it in print. It is an adaptation of the work of Jan Harold Brunvand, a CSICOP Fellow, author, and expert in the field of urban legends. In Brunvand's many best-selling, educational, and entertaining books, he explains how urban legends are the false stories that we all have heard, believed, and told again and again as truth about strange, unlikely, and amazing events, often of a supernatural nature.



In *The Big Book of Urban Legends*, also subtitled *200 Stories Too Good to Be True*, 200 interesting stories are told once again, but this time, in comic book form. The result is entertaining, informative, and engrossing. Not only did I enjoy the entire book, snickering and giggling almost constantly for two or three hours, but I also learned something. There's an urban legend in the book about motherly looking smugglers hiding drugs in the corpses of babies in order to get them through customs checkpoints. I ran across this rumor two or three times while writing my recently published nonfiction book on Chinese crime groups. I didn't believe it, so it's not in my book. Brunvand didn't believe it either, and so it's now in his. *The Big Book of Urban Legends* also includes the legend about alligators in the New York City sewers, and the one about someone putting a wet poodle in

the microwave oven to "dry" it.

Each of the stories is drawn by a different comic book artist. All of these artists are among the best in the field, so the art quality is top-notch, although styles do vary greatly and some are more cartoony and stylistic than others. Furthermore, the artists and book writers seem to keep in mind a key point: Urban legends are fun! Too often when artists tackle a "serious" subject they forget to entertain, and people stop reading and looking. For example, comic fans might remember "True War Stories," the Eclipse peace-movement comic of the 1980s; good cause/bad comic, so nobody paid attention.

The Big Book of Urban Legends, which features an explanatory introduction by Brunvand himself, is just what we need, whether we care to admit it or not. As with the legends themselves, sexual content and graphic violence make this book inappropriate for children and teenagers, but it is sure to appeal to (and reach) many adults who need the book's perspective.

All in all, it is a much needed addition to the skeptical literature and worth the price. Now if only we could get someone to make "False Memories Breakfast Cereal," "Sleep Paralysis and Anomalous Psychology Trading Cards," "Psychic Investigations Role-Playing Games," and "Great Hoaxers of the Paranormal Action Figures." □

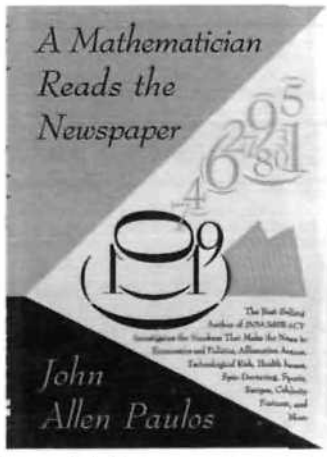
Peter Huston's first book, Tongs, Gangs and Triads-Chinese Crime Groups in North America *was recently published by Paladin Press. He is working on a second one, tentatively titled* Scams from the Great Beyond: Hoaxing Psychic Phenomena, New Age Miracles, and UFO Sightings, *also to be published by Paladin. He lives in Schenectady, New York.*

The Numbers in the News

WOLF RODER

◀ *A Mathematician Reads the Newspaper.* By John Allen Paulos. Basic Books, New York, 1995. 212 pp. Hardcover, $18.00.

A Mathematician Reads the Newspaper consists of a large number of short vignettes, each on a different topic, loosely grouped around issues found in the newspaper and other media. John Allen Paulos, a math professor at Temple University and author of *Innumeracy* and *Beyond Innumeracy,* introduces mathematical and statistical reasons for questioning what is read. Paulos is also a Fellow of CSICOP, and much of his argument rests on logical assessment of news stories. Thus, it is careful reasoning that leads him, for example, to question the evidence about the Florida dentist accused of infecting six of his patients with the human immunodeficiency virus (HIV). That the rate of infection among the dentist's patients was only slightly higher than the rate of infection in the counties where the patients lived was part of that reasoning.



Paulos introduces some quantitative sleight of hand. Based on a single set of data, he shows how any one of five political candidates may be considered the leading contender for office. He mentions the specious precision introduced when we convert from one measuring unit to another, for example, about 37°C to precisely 98.6°F. He makes us appreciate how a simple logistic formula can become chaotic as we vary a single parameter.

Paulos has much to say about the logic of the "what" and "how" of presentation. Thus, a pint of poison mixed into the world ocean can be described as one part in 10^{21} or as 6,000 molecules in each pint of water. He talks of comparability. Many Americans die of heart disease and cancer, but more years of life are lost to auto accidents and guns. Many issues are too complex with too many variables for assessment. So newspapers tell a story by highlighting the good quote, and omitting or playing down research or examination. In ecology there is a tendency to look for human culpability where merely a natural process is at work. Millions of dollars are spent to diminish a perceived but minute risk, while glaring killers, such as guns or cigarettes, are ignored.

Paulos advocates that all journalistic questions should always include how many, how likely, what is the fraction, and how does it compare with other quantities. The news reporter also ought to include some assessment of how the data were obtained, how certain they are, and ask if there can be a causal relationship, or is mere coincidence being emphasized. And finally, journalists need to explicate the overall view, the connections of the story, the dynamics of the whole system.

For a book that is an easy read, it is remarkably rich in learning and insight. □

Wolf Roder is professor of geography at the University of Cincinnati, Cincinnati, Ohio.

The Last Taboo

ROBERT A. BAKER

Cannibalism: From Sacrifice to Survival. By Hans Askenasy. Prometheus Books, Amherst, N.Y. 268 pp. Hardcover, $25.95.

Hans Askenasy, a California clinical psychologist, was born in Germany and spent his teen years under Adolf Hitler's rule. In 1949 Askenasy immigrated to the United States, and after several years as a United States Marine Corps pilot, he earned his doctorate in psychology at the University of California, Los Angeles. He then wrote two books on Nazi psychopathology: *Are We All Nazis?* and *Hitler's Secret.*

Askenasy next developed an interest in human taboos—especially the social prohibition against humans eating human flesh. Such a taboo is not—nor has it ever been—universally *verboten,* but the practice does seem to be severely restricted.

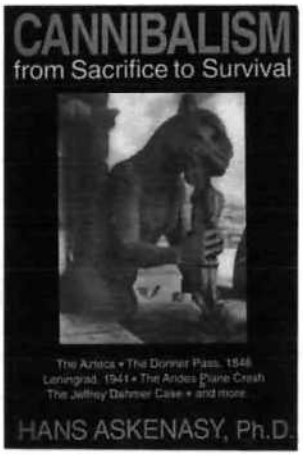
In many cultures and in many social settings cannibalism has not only been approved but also applauded. Askenasy, in his book *Cannibalism: From Sacrifice to Survival,* poses three questions about the ancient taboo: First, if we were starving to death and the only way to survive was to eat other humans, what should we do?; Second, even if we aren't starving why shouldn't we eat the dead? Why waste perfectly good nutritious meat?; Third, why does the subject itself arouse so much horror and revulsion, but at the same time why is it so attractive and fascinating to people everywhere?

People flocked to theaters to see the films *The Silence of the Lambs, Alive,* Francis Ford Cappola's *Dracula,* and other movies about cannibalism.

Television specials about serial-killer cannibals Jeffrey Dahmer and the Russian Andrei Chikatilo—Chikato allegedly ate fifty-two people—have drawn millions of viewers. There is also interest in Omeima Nelson, a husband-eater from Orange County, California.

Literary classics, such as Stanley Ellin's unforgettable 1948 book *The Specialty of the House,* are required reading in many high school English classes.

Part One of Askenasy's book *Cannibalism* provides a historical and geographical overview of the subject, including the fact that the word *cannibal* is derived from the Carib Indians of the Bahamas who lived in Columbus's time. The book states that Columbus called these Indians—who ate all their male prisoners of war—"caribales, which came to to be pronounced cannibales—thus giving their name both to the Caribbean Sea and to the custom of eating human flesh" (p. 13).



Curiously, many primitive tribes and cultures neither encourage nor condone it, for example, Tahitians, Pygmies, Bushmen, Zulu, Masai, and Fuegians whereas, historically, cannibalism was quite common in West and Central Africa, Australia and New Zeâland, New Guinea, Melanesia, Polynesia, and Sumatra.

Even more curious is the fact that among the more paranoid members of UFOlogical circles is the rumor that little gray aliens relish the taste of human flesh.

Most of Askenasy's book is devoted to the many legends and tales of cannibalism, old and new, from around the world. These stories make fascinating, entertaining, and horrifying reading. Reading Chapter 2 of Askenasy's book is akin to watching Quinten Tarantino's *Reservoir Dogs, Pulp Fiction,* and *True Romance:* horrible but captivating.

Despite the fact that isolated and pathological incidences of human flesh-eating are well supported by material evidence, a few years ago a number of respected and credentialed anthropologists raised serious doubts as to whether cannibalism has ever existed as an approved social practice. Most of the evidence for it, they argued, is anecdotal and indirect.

As the author makes clear throughout the book, all of the many and varied stories, claims, and accounts from all of the hundreds of raconteurs, may or may not be true. In Askenasy's words: "It seems that it is always someone else who indulges in our flesh and blood, or someone else who has actually observed it" (p. 52).

Anyone seriously interested in this controversial subject should not make up his or her mind before also reading William Aren's book *The Man-Eating Myth* (1979, Oxford University Press). Askenasy also equivocates, noting, "The good news—reasonable research—all too often alternates with the bad news—bad research, e.g., nebulous concepts; peculiar verbal gymnastics; and fanciful, if unfortunately unproven, theories of personality dynamics" (p. 54).

In the second half of the book Askenasy looks at the various types of cannibalism and the motivational factors behind each type—famines, natural and manmade disasters, accidents (such as shipwrecks, the Donner Party, plane crashes, and so forth), magic, ritualistic practices, and punishment. Also examined are cannibalistic behav-

iors that are due to sadism and psychopathology. Perhaps the third part of the book, "Cannibalism in Culture and Society," which is concerned with werewolves, witches, vampires, and unusual medical, legal, and psychological cases, will have the greatest appeal for skeptics.

Despite tons of factual evidence to the contrary, many intelligent United States citizens are firmly convinced satanic ritual abuse involving rape, murder, and cannibalism is rampant in the nation today. Hysteria about satanic ritual sex abuse has reached such proportions that Kenneth Lanning, leading authority on child abuse for the Federal Bureau of Investigation, states: "Hundreds of people are alleging that thousands of offenders are abusing and even murdering tens of thousands of people as parts of organized Satanic cults and there is little or no corroborative evidence" (p. 178). Other authorities are even more adamant, stating that they know of no one case in this country where allegations of ritual abuse have turned out to be true. Richard Gardner, the forensic psychiatrist, calls such claims "psychopathy masked as religiosity" (p. 181).

Also not to be missed are the author's analyses of several of our modern criminal cannibals, such as Dahmer and Chikatilo.

Askenasy's conclusions with regard to cannibalism are well worth studying. His answer to the question "Is cannibalism one of man's last taboos?" is both yes and no. Many people practiced it in the past, but most of us today would rather starve. "Most human beings," Askenasy believes, "appear to need a few taboos and for the time being cannibalism seems to serve that purpose admirably" (p. 231). Anyone interested in the far reaches of human behavior should read and ponder Askenasy's provocative book. □

Robert A. Baker is professor emeritus of psychology at the University of Kentucky.

New Books

The Ape-Man Within. **L. Sprague de Camp.** Prometheus Books, 59 John Glenn Dr., Amherst, NY 14228-2197. 1995. 266 pp. $25.95, hardcover. Exploration of why we find it so hard to get along with people of different nations, religions, and races. Focuses on the tendency to view others as adversaries that has been passed along to us as survival traits from our ancestors, who foraged in bands, scrounged for food, and chased other scavengers away from the kill.

A Celebration of Humanism and Freethought. **David Allen Williams.** Prometheus Books, Amherst, NY 14228-2197. 1995. 302 pp. $29.95, hardcover. A delightful sampler of a wide range of works by the world's most renowned writers, poets, philosophers, and other intellectuals. The emphasis is on calls for reason, tolerance, freedom of expression, and opposition to ignorance, supernaturalism, and dogmatism. Illustrated with rare engravings ("which deserve to see the light of day after a hundred years of being lost in many a dusty volume"), this is a refreshingly attractive work for browsing and reference.

Flying Saucers are Everywhere. **Tom McHugh.** Prometheus Books, Amherst, NY 14228-2197. 1995. 135 pp. $12.95, paper. A humorous look at everything you've ever wanted to know about flying saucers. Parody is alive and well. Illustrated by John Kloss.

Hitler and the Occult. **Ken Anderson.** Prometheus Books, Amherst, NY 14228-2197. 1995. 224 pp. $25.95, hardcover. A journalist's critical examination of the idea that the occult was a major factor behind the rise of Adolf Hitler. Concludes that although Hitler and his Nazis were enveloped in an aura of mysticism, the claim that Hitler relied heavily on omens and astrology can be rejected.

John Dewey. **Sidney Hook.** Prometheus Books, Amherst, NY 14228-2197. 1995. 242 pp. $29.95, hardcover. An intellectual portrait of one of America's most influential social philosophers. Dewey was a diligent advocate of critical intelligence, democratic freedoms, social responsibility, and the scientific method of free inquiry. This introduction to his thought is by a student and lifelong friend who himself became an eminent philosopher.

Thinking About Social Thinking. **Antony Flew.** Prometheus Books, Amherst, NY 14228-2197. 1995. 278 pp. $17.95, paper. A noted philosopher and scholar assesses what can and cannot be learned from social science studies. He indicates where good work has been ignored and where much-needed work is still to be done. He examines methodological flaws and systematic misunderstandings that corrupt the content and application of the social sciences.

The Universe at Your Fingertips: An Astronomy Activity and Resource Notebook. Edited by Andrew Fraknoi. The Astronomical Society of the Pacific, 390 Ashton Ave., San Francisco, CA 94112. 1995. 813 pp. $24.95 + $6.00 shipping in U.S., $24.95 + $12.00 shipping outside U.S., loose-leaf format. (California residents, add tax). Collection includes 90 hands-on activities that allow students and teacher to investigate many areas of astronomy. Includes annotated resource listings—print, audiovisual aids, computer software, and organizations. The notebook is a result of Project ASTRO, supported by the National Science Foundation, to create partnerships between school teachers and amateur and professional astronomers in their community.

—Kendrick Frazier

Articles of Note

Bianchi, Robert Steven. "Alexander's Tomb . . . Not!" *Archaeology,* 48(3): 58-60, May/June 1995. A Greek woman, apparently led by prophecy, claimed to have found the tomb of Alexander the Great far from its historic location. Many news organizations reported the story straight, only to see the Egyptian authorities promptly dismiss the claim.

Dawkins, Richard. "Where'd You Get Those Peepers?" *New Statesman and Society,* June 16, 1995, p. 28. Creationists like to argue that the eye could not have developed through evolution. Swedish scientists have used a computer program to demonstrate that a single light-sensitive cell could develop into a fish eye in 400,000 years.

Dotinga, Randy. "Wronging the Right." *Columbia Journalism Review,* March/April 1995, pp. 17-18. When fundamentalists on the Vista, Calif., school board encouraged—but did not require—teachers to discuss creationism, national reporters descended and got everything wrong from the town's geography to the board's policy on school breakfasts.

Dowling, Jonathan P. and Henry P. Stapp. "Parapsychological Review A?" *Physics Today,* July 1995, pp. 78-79. Dowling, in a letter, presents a "serious concern" to the physics community at large. It involves physicists dabbling in "things that most of us would not call science," specifically, a paper published in *Physical Review A* in 1994 by Henry P. Stapp. Stapp tried to theoretically explain experiments that purport to demonstrate paranormal phenomena, such as Helmet Schmidt's telekinesis experiments. Dowling notes that scientific investigations have criticized previous paranormal experiments by Schmidt as "statistically and scientifically unsound." He raises objections and points to other apparent irregularities in Stapp's paper and criticizes the decision to publish it. Dowling's critique is followed by a response from Stapp. Dowling and four colleagues are preparing a more detailed comment for submission to a physics publication.

Fara, Patricia. "An Attractive Therapy: Animal Magnetism in Eighteenth Century England." *History of Science,* 33 (2): 127-177, June 1995. In the 1780s, hypnotism and treatment with magnets were extremely popular in Britain. An extended, thoroughly researched study.

Freeny, Michael. "The Truth of False Memories. *Orlando Sentinel,* July 23, 1995, pp. 61-64. Michael Freeny, a psychotherapist and expert witness for the Florida Department of Business and Professional Regulation, presents the skeptical viewpoint about repressed memories. He describes Elizabeth Loftus's work and has a "More Information" sidebar.

Groothius, Douglas. "To Heaven and Back?" *Christianity Today,* 39 (4): 39-42, April 3, 1995. A critique of Betty Eadie's *Embraced By the Light* and similar books, showing the flaws in near-death experience reports from a Christian point of view.

Harrison, Ted. "Lords of the Ring." *The Times Magazine* (London) 4 (26): 17-19, July 1, 1995. For two hundred years, campanologists have puzzled over the mathematical intricacies of a bell-ringing pattern called the Stedman Triples. Three British composers working separately have recently solved the problem, which Harrison suggests is evidence for Rupert Sheldrake's theory of morphic resonance.

Hayward, James. "Mediums, Psychics and the Law." *Criminology,* 19 (1): 33-42, Spring 1995. An overview of English laws and court cases involving psychics and spiritualists, dating back to the Egyptian (i.e. Gypsy) Acts of 1530. As recently as 1944, some fortune-tellers were charged under an eighteenth-century law forbidding witchcraft.

Hennessey, Stewart. "Fallen Angel." *The Times Magazine* (London), June 24, 1995, pp. 25-26. Fascinating article on Ukrainian cult leader Maria Devi Khristos, who believes she is God, and her trial in Kiev ("the biggest story in Ukraine since Chernobyl in 1986"). Khristos, 34, is spiritual leader of Byeloye Bratstva (White Brotherhood), whose members call themselves Brothers and Sisters. Followers find unconfined joy in her presence, but Hennessey reports that the cult "excels in putting across the bogus sense of urgency typical of millennialist cults and, of course, at relieving followers of their flats, money, and possessions while turning them into wretched shells." Khristos's arrest came after a "farcical sequence of events" in 1993 after the cult descended on Kiev, home to 3.5 million people, and virtually held the Ukrainian capital in its power—children were kept indoors—with a prediction for the end of the world on November 14, 1993. Khristos (real name Marina Tsvygun) awoke from an abortion on April 20, 1990, and declared she was God; her first husband thinks the extra heavy anesthetic she requested may have caused her delirium and permanently changed her.

Mackey, Rochelle. "Discovering the Healing Power of Therapeutic Touch." *American Journal of Nursing,* 95 (4): 26-33, April 1995. This article, which nurses can read for continuing-education credits, discusses the use of "therapeutic touch" to improve the "energy flow" in patients. A sidebar reports on positive results of recent studies of the technique.

McAneny, Leslie. "It Was a Very Bad Year." *The Gallup Poll Monthly,* 252: 14-17, January 1995. Two-thirds of Americans taking a recent poll said they believed in the devil; up from 52 percent three years ago. Seventy-nine percent believe in heaven and 72 percent believe in angels.

Meskell, Lynn. "Goddesses, Gimbutas, and 'New Age' Archaeology." *Antiquity,* 69 (262): 74-86, March 1995. Meskell argues that descriptions by Marija Gimbutas and others of matriarchal, Goddess-worshipping societies are based more on modern politics than an archaeology.

Miller, Jonathan. "Going Unconscious." *New York Review of Books,* 42 (7): 59-65, April 20, 1995. Another review of the history of animal magnetism. Miller's focus is on James Braid, who coined the term "hypnotism," and whose work led to important discoveries concerning the ways the brain governs the body.

Raloff, Janet. "Dowsing Expectations." *Science News,* 148:90-91, August 5, 1995. An article examining claims about dowsing, occasioned by a recent article in *Physics World* and a published report by German physicist Hans-Dieter Betz that contends that good dowsers can indeed detect underground water. The article contains abundant critical analysis and commentary. Psychologist Ray Hyman, for example, says Betz's test design and absence of adequate comparison data flaw most of his analyses. Hyman also points to other flaws and says Betz's work is unscientific. German skeptic Amardeo Sarma explains psychomotor and psychological reasons why dowsing seems, to the practitioner, to work, when in fact there is no reason to think it does. And hydrogeologist Jay Leher, former head of the National Water Association, calls the idea of a "force field" that the body can intercept and interpret "patently absurd" and points out that many apparently successful dowsers are familiar with various surface cues that indicate presence of subsurface water.

Shorter, Edward. "Sucker-Punched Again! Physicians Meet the Disease-of-the-Month Syndrome." *Journal of Psychosomatic Research,* 29 (3): 115-118, February 1995. More than ever before, patients are coming to doctors with their own diagnoses, often of diseases they have heard about on television. Especially prominent is Chronic Fatigue Syndrome, which Shorter says resembles plain old depression.

Simpson, Jacqueline. "Margaret Murray: Who Believed Her, and Why?" *Folklore,* 105: 89-96, 1994. Murray was among the first to propose, in the 1920s, that medieval witches were actually carrying on pagan rites. Much of the common view of witches—such as covens having thirteen members—begins with her, but her scholarship was questioned even at the time, and her interpretation of original texts is very shaky.

Wolcott, James. "I Lost It in the Saucer." *The New Yorker,* July 31, 1995, pp. 75-78. Excellent essay-review on alien-abduction claims occasioned by C. D. B. Bryan's *Close Encounters of the Fourth Kind.* Wolcott is highly critical of the book and the work of John Mack. Several years earlier, Wolcott had done some of his own investigations. "I found my own sense of wonder shriveling like dead leaves. . . . It was easy enough to pick the logical holes in abduction lore. . . . The lack of corroboration was also telling. . . . I came to feel that I was dealing with a quasi cult of deluded cranks. . . . They seemed to be testing how far they could take their personal narratives." Wolcott calls Mack a "Third Wave" thinker, for whom "there are no facts, only interpretations." He notes that Bryan, "a liberal soul," welcomes the "marvelous" tales of the people who populate his book. "But," concludes Wolcott, "can we really afford to shut off our bullshit detectors and indulge every emanation of the occult? Superstition is no substitute for the salience of what's actually before us."

—Kendrick Frazier and Robert Lopresti

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For more information, contact Barry Karr, Executive Director of CSICOP. All inquiries will be held in the strictest confidence.

Committee for the Scientific Investigation of Claims of the Paranormal
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Science and the Fallible B.S. Detector

RALPH ESTLING

Someone once asked Ernest Hemingway what he thought was a writer's most important tool. Hemingway knew straight off. "An infallible bullshit detector," he answered. He didn't specify the range the detector should have, I suspect, because he saw no reason to limit its range or the exact type and species of B.S. it was meant to detect. Detecting B.S. is detecting B.S., I guess he figured, no matter its source, location, and espouser.

We have no excuse for erecting limits, drawing boundaries, citing no-go areas. We must deal skeptically, critically, not only with the irrational—claims of paranormality and all that—but, and far more important for the field of intellectual development, with claims that are utterly and entirely rational. This second kingdom of inquiry includes science and all its works. The testing of scientific claims is manifestly more worthy of our time and consideration (both being limited for mortals) than claims of an irrational, unscientific sort can ever be.

Belief in paranormal and supernatural beings, forces, and events is not an especially essential statement about the nature and manifestation of things, and for this reason skeptical inquiries into these, while often desirable, are rarely essential. But when we are faced with affirmations by qualified, or seemingly so, scientists based on scientific methodologies—for example, that the universe had a beginning in time and that this beginning had its ultimate cause in this or that cosmologic occurrence and process, or was totally without cause, possessing effects only—then it behooves us to sit up, take notice, and think. This much for starters. After this, we must engage in observational tests of the claim. If observational tests are not possible, then we are thrown back to logical/mathematical surmises, which are not nearly as good as determining the truths our skeptical souls hanker after.

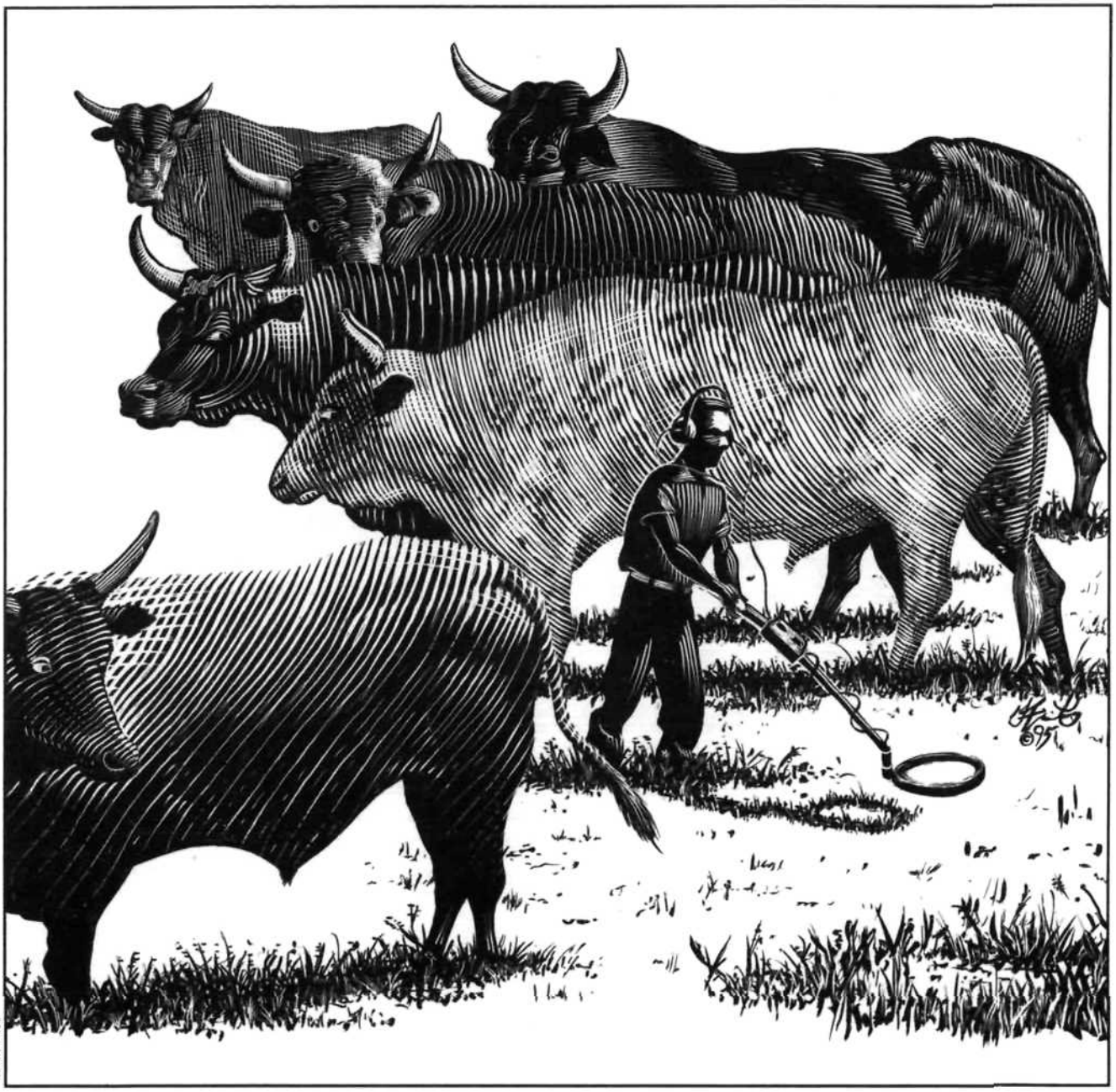
For all of this, rational and irrational claims alike, we need that wonderful machine, the infallible B.S. detector. Sadly, this is an imperfect world, and so, such an agent of truth does not yet exist. Until it does, we must rely on that fallible device, our brain.

The brain is desirable in two ways: for acquiring information and for assessing it. Both functions are essential. We must first acquire information so that it can be assessed. But if we acquire it without assessing it, we are likely to contribute nothing to the world except a lifetime's manure.

Our brain's unquestionable fallibility is a source of deep disquiet to us. This disquiet is a good thing, for without it, we run the risk of confusing ourselves with God. If we keep the distinction clearly in mind, our brains can be useful instruments in humanity's ongoing battle with B.S. of all constituencies, breeds, and distinctions—the common variety of everyday encounters, or the uncommon and often startlingly marvelous sort of the poets, priests, and philosophers, and yes, the scientists. This is often quite beautiful and, being beautiful, detecting its true nature is harder, and from an aesthetic point of view, a rude, vulgar, and thoroughly beastly thing to do.

I have been accused of being beastly to scientists, a grave charge. However, the accusation is fair, if I add the qualification "some." I have also been informed I am antiscience, the logic being that if I criticize some scientists for some of their remarks this is because I fear and hate science and wish it ill. Similarly, a parent telling a child to be good rather than wicked, and wise rather than foolish, does so because the parent fears, hates, and is out to destroy the child.

If the human race, this "damned human race," as Mark Twain called it, is to realize salvation, and I'm not sure it is, that salvation will lie in science and in no other realm of human intellectual activity. Science is not only an



Gerald Fried

intellectual force; it is as emotional and as spiritual as any other mentally derived function in which human beings engage their brains. I think the truths revealed by science—and I use the word *truths* deliberately, for *facts* or *information* or *data* do not carry the weight, the *gravitas* I want—matter far more than the comforts of religion, philosophy, and poetry all put together. What's more, I think science is *more* beautiful than they, with their evasions and quarter-truths. For science treats us like grown-ups, and I think we ought to like that.

Not all scientists are grown-ups. Some are remarkably childish, and I see them as betrayers of science. Some do not betray science so much as totally misapprehend it, what it means, what it is here for. I don't suppose that scientists, as a class, are more stupid than other people. But I'm disappointed that they don't appear much less so. Perhaps I expect too much from them.

Meanwhile, my fallible, clanking B.S. detector remains the only weapon I have against the deluge. I wish it were infallible, but for all its shortcomings, defects, and failures, I wouldn't be without it, not for all the peace of mind, peace of soul, and joy of heart I am offered in its stead by the spin doctors of the spirit, not even if I were to be taken up to some very high place where I could behold all the kingdoms of this world, and of the next, and were offered them in exchange.

And if there is a next, I won't want to go there, not unless they let me take my detector along with me. Even there. Even then. □

Ralph Estling writes from Ilminster, Somerset, U.K.

Aliens *from page 16*

and about five frames of leader film that carried no date coding and was supposedly clipped from the beginning of one of the rolls of film. Conclusive tests on the film had yet to be done.

The Hollywood special effects team led by Stan Winston gave the most impressive testimonial. But I got the impression they were being asked to gauge the difficulty of staging a bogus alien autopsy back in 1947. Winston and his associates said the special effects were good, even by today's standards, but from the clips shown on "Alien Autopsy," this television program didn't seem to come close to rivaling the quality of films you could rent in any video store.

The bottom line is that if the film is legitimate and this is the first solid evidence of life on other planets, it deserves real authentication, not the casual checking the program provided.

Independent experts need to pinpoint the date of the frames, then examine all the reels to be sure the entire film has the same date code. For all we know, most of the film is from contemporary stock. Checking the whole film would dramatically narrow the range of possibilities for a hoax.

The cameraman needs to be identified and questioned to confirm that he exists, that he was in the military, and that he really was the cameraman. There's been talk that he wants to avoid being prosecuted by the government for keeping a copy of the film all these years. That's claptrap. If the film is a hoax, why would the government bother him? If the film is real, dragging a more-than-80-year-old military veteran into court would be an admission by the government that the footage is real, and that would spark some tough questions about who or what was on that examining table. The government, not the photographer, would be on the hot seat.

But instead of insisting on authentication first, Fox seemed intent on milking the movie for every penny possible. The network repeated the program one week after its original showing and tried to drum up renewed interest for the rerun by promising more footage from the 17-minute film. Those who turned in saw about three additional minutes of footage, but Fox still didn't show the whole 17-minute film. In all, the autopsy sequences were only on the screen for 13-1/2 minutes and, once again, that total included clips that were shown repeatedly.

It was not what you would expect from a major network that thought it was broadcasting a history-making film.

It was, however, what you would expect from a network trying very hard not to spoil an illusion. □

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- **Paul Gross,** professor of biology, Univ. of Virginia
- **Norman Levitt,** professor of mathematics, Rutgers
- **Ray Hyman,** psychologist, Univ. of Oregon
- **Philip Klass,** aerospace writer, engineer
- **William Jarvis,** professor of health, Loma Linda Univ.
- **Barry Beyerstein,** biopsychologist, Simon Fraser Univ.
- **James McGaha,** Major, USAF; pilot
- **John Paulos,** mathematician, Temple Univ.
- **Stephen Barrett,** psychiatrist, author, Allentown, Pa.
- **Amardeo Sarma,** European Skeptics representative

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Freud *from page 12*

impudent and intellectually disabling belief that they enjoy a "privileged access to the truth." The opinion is gaining ground that doctrinaire psychoanalytic theory is the most stupendous intellectual confidence trick of the twentieth century: and a terminal product as well—something akin to a dinosaur or a zeppelin in the history of ideas, a vast structure of radically unsound design with no posterity.

The American writer Tom Wolfe, in *In Our Time,* put it this way:

> Freudianism was finally buried by the academic establishment in the 1970s, ending its forty-year reign in the United States. By 1979 Freudian psychology was treated only as an interesting historical note. The fashionable new frontier was the clinical study of the central nervous system, an attempt to map precisely how the panel is wired for fear, lust, hunger, boredom, or any other neural or mental event. Long overshadowed by psychoanalysis, brain physiology came into its own with the development of such equipment as the stereotactic needle implant. Today the new savants probe and probe and slice and slice and project their slides and regard Freud's mental constructs, his "libidos," "Oedipal complexes," and the rest, as quaint quackeries of yore, along the lines of Mesmer's "animal magnetism" and "*baquet* processes." The central concept of Freud's pathology, the "neurosis," is now regarded as a laughable historicism on the order of "melancholia" or "phlegmatism." Freud himself is regarded as an unusually humorless quack.

My next column will discuss recent efforts to understand why we dream, and what, if anything, dream images signify. □

Objectivity *from page 35*

possible variables such as the temperature of the water used to work up the shaving lather, the amount of lather used, and the amount of pressure used on the shaving strokes and on feeling one's cheeks after the shave. From a scientific point of view, this kind of test is worthless—it tells us nothing about a change in the sharpness of the razors after being inside pyramids.

At this point in my presentation of the example to my class, I'll usually ask my students if they can think of a better controlled procedure for testing pyramid power. A common suggestion is to cut paper or leather instead of facial hair, but this procedure is not much better than the original one. It doesn't control the amount of pressure on the blades while cutting the material, and it doesn't establish clear and precise criteria for judging the ease with which they cut. The true believer and the skeptic will probably arrive at the same, diametrically opposed results. What we need, of course, is a more objective measure of the sharpness of razors after putting them inside pyramids. One way to accomplish this would be to view the cutting edges of the razors with a microscope and photograph the edges before and after their stay in the pyramids. Impartial observers using some explicit measurement procedures could then compare the photographs and determine if the cutting edges of the razors were unchanged or not. A procedure such as this eliminates all the above-mentioned physical and procedural variables and it isolates the biases of the participants.

My students often are surprised when I next tell them that the issue is not completely decided by even so rigorous a procedure. The problem is that it is a single test, and any number of things could have gone wrong. The microscope might not be working properly. A difference in air temperature might affect the image of the cutting edge. Something else, something we haven't thought of, might be influencing the test. But if we or someone else replicates the test and arrives at the same conclusion, our confidence in the reliability of our result is enhanced.

Derek Gjertsen (1989) has an excellent discussion of the importance of repeatability in research. He points out that positive results are not difficult to come by in single experiments (recall the initial claims for N-rays, anomalous water, magnetic monopoles, and the 17 keV neutrino), and that researchers cannot guarantee that a procedure used on just one occasion is free of all possible defects. (The same, of course, holds for singular cases of negative results.) Knowledge of the full range of possible defects is possible only with a great deal of experience. Repeating the experiment is the only way to be more sure of the objectivity and reliability of experimental procedures and their results. This point is especially frustrating for researchers in the paranormal field, for while there are numerous singular cases of positive results achieved with seemingly rigorous procedures, there is not a single, undisputed case of a repeatable positive result. It might be that psychic powers and supernatural phenomena are inherently fickle, but in the absence of repeatable positive results, we face another possibility—that such powers don't exist at all. Whichever supposition one prefers, there is no avoiding the fact that there is no hard evidence for anything of this sort without repeatable positive results.

Rigorous research is not quick and easy. Experiments are often quite complicated and make use of new equipment and procedures. The participants may have strong and unconscious biases. Great effort must be expended in the design of the experiment to assure its objectivity, and reproducibility. This is time-consuming but necessary. The path to knowledge is strewn with many pitfalls, not the least of which is our own capacity to see things that aren't there.

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Letters to the Editor

The following letters continue the lively reader response on this subject beginning in our September/October Letters column.

—EDITOR

More on the 'Is Skepticism Tenable?' Debate

The article by John Beloff, "The Skeptical Position: Is it Tenable?" and the sparring responses from James Alcock, Susan Blackmore, Ray Hyman, Paul Kurtz, and Martin Gardner (*SI,* May/June 1995), provided a first-rate show! Readers infrequently get an opportunity to have a ringside experience with "heavyweights" trading punches. Give us more such nitty-gritty exchanges in the interest of science, reason, and fighting boredom!

Arlin Baldwin
Coarsegold, Calif.

I was thoroughly impressed with your debate "The Skeptical Position: Is It Tenable?" It was an excellent idea for *SI* to include Beloff's thoughtful defense of his viewpoint with the skeptical follow-up in an open forum. It certainly makes me more skeptical of the claims by some parapsychologists that CSICOP is a zealous, close-minded organization determined to seek out and destroy all paranormal claims regardless of the evidence. CSICOP has earned my utmost respect for its objectivity in analyzing claims, and, our differences aside, so has Beloff for his forthright honesty in admitting that parapsychology has not thus far met the basic standards of scientific methodology.

Alcock's response alone seemed sufficient to answer Beloff's claim of historicity. Beloff stated that Kurtz could accept psi phenomena in the presence of indisputable evidence but only with the tacit assumption that psi is physically explicable. Kurtz rightfully responded that Beloff, as an "absolute paranormalist," does parapsychological work with his tacit assumption that psi is not physically explicable. There are plenty of tacit assumptions on both sides of the issue. I also found it quite interesting that Beloff called himself an "absolute skeptic" with regard to claims that Earth is being visited by extraterrestrials. Although such visitations are unlikely, they are far more plausible and compatible with present-day science than anything that has come out of parapsychology.

Keith Augustine
Joppa, Md.

John Beloff was my mentor in parapsychology for a long time. This is why I appreciate your having invited him into an exchange with five notable critics of parapsychology.

Although I resented Martin Gardner's contemptuous tone in his response to Beloff, I will make some empathetic comments about Gardner's charge of Beloff's "extreme credulity." Gardner is wrong in stating that Beloff's latest book is *The Relentless Question;* it is *Parapsychology, a Concise History* (1993). But it was precisely some hypercredulous evaluations of psychic claims in this latest book that changed dramatically the high opinion I had of my mentor. I will mention only a few.

Incredibly, Beloff doubts Douglas Blackburn's explanation of how he and Smith flimflammed top Society for Psychical Research researchers. Also, unlike most historians of parapsychology he presented the notorious Creery girls case as probable evidence for telepathy. But, worst of all, he left the door open to a possible paranormal interpretation of Florence Cook's materialization of Katie King, which was, to all appearances, a perfect duplicate of her hidden medium! (In Beloff's book of parapsychological history there are other instances of hypercredulity about psychic claims.)

I must confess I feel quite uneasy criticizing a friend I still admire and respect, and I will continue to recommend Beloff's writings to skeptics and believers alike. He is the only parapsychologist I know who subscribes to the SKEPTICAL INQUIRER and who never overstates his case (in sharp contrast with most of his arrogant colleagues, Beloff concedes that the case for psi fails on scientific evidence). His is probably the only truly sane voice in the entire field of parapsychology. It is only on some cases of historical "evidence" of psi that my former mentor went astray.

César Tort
Mexico City, Mexico

'Absolute Skepticism' and Physics

Lately I have become suspicious that *SI* shows too much understanding toward claimants of the paranormal. Such an expression was confirmed in the exchange between John Beloff, the "respected parapsychologist" and skeptics ("The Skeptical Position: Is It Tenable?" *SI* May/June 1995). Beloff quickly dismissed a particular skeptical stand, which he called "absolute skepticism," namely the one that summarily rejects the paranormal because it conflicts with laws of nature. The responders, including Martin Gardner, whom I have respected since his *Scientific American* years, did not take Beloff up on this point. It seemed as if all agreed, at least tacitly, that such an "absolute" position is closed-minded.

I feel compelled to admit openly, and proudly I might add, that I am an "absolute skeptic." Furthermore, I can hardly imagine a more solid skeptical stand than one based on the simple fact that "magic" contradicts science. Such a position was beautifully espoused by Philip Anderson, one of the leading physicists of our time, in a piece titled "On the nature of physical laws" (*SI,* Summer 1992, reprinted from December 1990 *Physics Today*).

Physics is not, as many scientifically

literate people believe, an assortment of constantly changing observations. It is a rock solid, interlocking edifice built in the past 300 years. Likely, it is the greatest intellectual achievement of mankind. Yes, there are places where expansion is in order, or alternatives are allowed, but the arbitrary removal of pieces here or there would cause the collapse of the structure. Flat-earth, astrology, micro-psychokinesis, and the myriad other paranormal claims all have in common the fact that they can't fit into the edifice of physics. An "absolute skeptic" simply states: The paranormal claim of the hour is not likely to cause the collapse of physics. To illustrate, imagine someone equipped with a pick and shovel declaring to have just demolished the Cheops pyramid. Would it be closed-minded if, without directly checking that the pyramid is still standing, one assumed that the claimant is either lying, or was only playing in a sandbox and is suffering from grandiose delusions?

I am not trying to diminish the importance of debunking detective work in influencing public opinion. I regard the "Amazing" James Randi a national treasure. But we should be clearer in our own mind where we stand. Physics is not democratic; there is no value equivalence between let's say, a flat-earth theory and the scientific view of the cosmos, even if belief in the former may be psychologically understandable.

Today, science and rational thinking are under a siege unlike any since the beginning of the Enlightenment. I think with a more sturdy backbone *SI* would better serve the cause of reason.

George Sai-Halasz
Mt. Kisco, N.Y.

Slides in Hell

In the interesting article "Slides in Hell" (*SI*, July/August 1995), Clifford A. Pickover poses the question: "As an example, why is it that if all the 3,838,380 ways of choosing 6 lottery numbers out of 40 are equally likely, the public would prefer the numbers 37 12 7 20 18 17 to 1 2 3 4 5 6?"

Though this was posed as a rhetorical question it has a straightforward answer: They don't. In fact, for the Massachusetts Megabucks Lottery game, as of 1988, the combination 1 2 3 4 5 6 was the tenth most popular. If it had struck, each of the 3,257 bettors expecting the total prize of $1,280,000 would have received instead about $393. They would have made out better than the 19,412 who bet on the most popular combination, 1 8 15 22 29 36 (at that time Megabucks was a 6/36 lotto game.) They each would have won a magnificent $66.

This a bit better than the potential lottery payoff in Florida when 12,139 bettors picked 4 1 5 6 8. They would have won $129.26 each by betting on Manuel Noriega's prison number displayed in a mugshot run by most Florida newspapers.

Of course this actually strengthens Pickover's point: Not only are people incapable of generating random numbers, they don't even try when its appropriate. The ten most popular Megabucks combinations were all arithmetic series.

Edward P. Wallner
Wayland, Mass.

Clifford A. Pickover's assertion that "in any game of chance involving betting, one is better off 'betting the ranch' on a single hand" is erroneous. As long as the events are independent, it makes no difference how a gambler distributes his or her bets.

Consider a coin-tossing game in which I have $10 to bet, and I only intend to bet on heads. If the bet is "On which toss will the first head appear?" then clearly, I should wager all my $10 on the first toss. If I am simply betting on whether an individual toss is a head, then I can distribute my $10 over as many tosses as I see fit. I can even wait for the one-hundredth toss (where the probability of the first head appearing is $(1/2)^{100} = 7.9 \times 10^{-31}$), and bet all $10 on heads, for all the difference it would make.

Fraser G. Dingwall
Southsea, Hants., U.K.

The content (not the title) of Clifford Pickover's "Slides in Hell" reminded me of China and a problem I once posed to my students related to that country's one-child-per-family mandate. Tradition calls for aging parents to be cared for by a married son (actually, by a daughter-in-law), which puts a premium on male infants. In a land with an abundance of pagodas and palaces, temples and tombs, but no siblings and cousins nor uncles and aunts, half of all parents will suffer neglect in their twilight years, unless . . .

Suppose every family were permitted to have one male child. A first-born son would be an only child. But a family blessed with a first-born daughter would be allowed a second child, and a third, and so forth until a son appears. A number of questions come to mind: What is the consequent ratio of boys to girls in the population? In the long-term, what is the average family size? What is the effect of slightly gender-biased fertility?

As for Pickover's conditional probabilities, consider this: Assume that a given couple having produced, say, a daughter is slightly more likely to produce a second daughter than a first son. How would this fact be discovered in the population statistics of our liberalized China?

Paul Niquette
Boise, Idaho

Bach Flower Remedies

Being in a slightly more favorable situation than the author, I recently came to know one randomized double-blind trial on Bach flower remedies (*SI*, July/August 1995). The study was performed at the obstetrics department in a West German hospital and is available as a written dissertation: "Brockschmidt HG: Effizienz einer Bach-Blüten-Therapie mit Recue-remedy während der Eröffnungsperiode einer Geburt" (Efficacy of a therapy with Bach Flower Remedies [Rescue remedy] during labor), University of Düsseldorf, 1989.

Two hundred female patients were randomly allocated to Rescue remedy or placebo. No difference whatsoever was found. The interpretation of the author may be of interest: "The application of Bach flower remedies is justified in spite of the negative result of the study because it can be helpful for many patients." It goes without saying that the study was never published.

Dr. J. Windeler, Professor
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Policy and the Tryptophan Disaster

The immense value of the SKEPTICAL INQUIRER lies in its being a vehicle for countering pseudoscientific claims—whether from New Agers, creationists, or snake-oil salespersons.

However, that value is undermined when articles cross the line from scientific discussion into political advocacy. Such articles dilute the message of *SI* and risk diverting the discussion to what, for *SI*, should be a non-issue. A good example is Stephen Barrett's "Notes on the Tryptophan Disaster," (July/August 1995), which is a plea by a "consumer advocate" for greater control of one more product (amino acids) by the U.S. Food and Drug Administration.

The question of the health value of a particular product is a scientific one. But the question of the government's proper role (if any) in regulating the sale and production of food and drugs is a political and philosophical one. Barrett's discussion of the first question should not have been allowed to serve as a basis for his proclamations concerning the second.

Jeffrey Richelson
Alexandria, Va.

"Notes on the Tryptophan Disaster" by Stephen Barrett was disappointing for its lack of logic and absence of reason. Safety and effectiveness are two entirely different criteria, but Barrett spends the better part of three pages blurring the distinction.

The Tryptophan Disaster was indeed that. Thousands of people needlessly suffered, and continue to do so, because they were sold a dangerously contaminated product. Uncontaminated L-tryptophan, however, harmed no one. The therapeutic effectiveness of L-tryptophan remains unconfirmed, and may well be fiction. That has nothing whatsoever to do with its safety. The safety of pure L-tryptophan is undisputed: It can't hurt anybody.

If the thousands of victims of contaminated L-tryptophan were in fact taking a product that is inherently without benefit, that makes the tragedy ironic. It does not make it more tragic. If the amino acid did everything claimed for it, the tragedy of harming people with a contaminated product would not be diminished.

David W. Woods
Boulder, Colo.

Stephen Barrett's article "Notes on the Tryptophan Disaster" draws the illogical conclusion that all amino acids should be banned by the FDA because of one unfortunate incident involving irresponsible manufacturing of L-tryptophan. Barrett accurately recounts the deaths and illnesses that resulted when Showa Denko ignored FDA warnings to thoroughly test a biotechnologically modified product. But why ban products that are properly tested?

Barrett claims that amino acids have not been proven to be safe and effective. Must everything we consume be proven to be safe and effective by expensive, double-blind studies? What about sugar, spices, red meat, alcohol and tobacco? Is there something wrong with consumers making informed choices about nutrients?

Ed Lantz
Cocoa Beach, Fla.

Stephen Barrett replies:

Amino acid "supplements" have no practical use in correcting dietary deficiency. Diets deficient in one or a few amino acids are seriously unbalanced and should be corrected by improving one's eating patterns.

I do not agree that "the safety of pure L-tryptophan is undisputed." A 1992 review by the Federation of American Societies for Experimental Biology concluded that little is known about the long-term safety of drug doses of single- or multiple-ingredient amino acid products. Some may turn out to have therapeutic use, but until they are proven both safe and effective for a practical purpose, they should not be available for sale to the general public.

Showa Denko was not the only culprit in the tryptophan disaster. The supplement industry and its publicists created a market by making false claims for tryptophan products. Lack of safety is not merely a matter of toxicity. It also includes the danger of relying on false claims that products are effective against disease. The FDA does not have the resources to stop most of the false promotions now made for many other products. That's why the law should be strengthened, not weakened. This problem is described in detail in a book I co-authored The Vitamin Pushers: How the "Health Food" Industry Is Selling America a Bill of Goods *(Prometheus, 1994).*

Artificial Languages

After finishing Martin Gardner's very interesting article on "Klingon and Other Artificial Languages" (*SI*, July/August 1995), I realized that he had failed to mention Loglan, invented by James Cooke Brown and presented to the public in *Scientific American*, June 1960. The syntax and semantics of the language include many innovative departures from those of typical natural languages but are designed with usability in mind. I believe that one purpose behind Loglan's development was to determine whether fluency in it would lead to modifications in a speaker's logical processes. Loglan is still alive and kicking: I found it through my computer at http://xiron.pc.helsinki.fi/lojban/lojbroch.html.

John G. Fletcher
Livermore, Calif.

Do I speak Esperanto like a native? No, but I know enough to spot Martin Gardner's errors. Only the present tense of verbs end in *as;* it would be true to claim that all verb tenses end in *s. Gradaj hundoj* means graduated dogs! The word for big (plural) is *grandaj.* The word *knoduku* in the Lord's Prayer should read *konduku* (lead).

Evidently Gardner is not as familiar with Esperanto as he thinks. This may explain his description of Zamenhof as a crank and his desire to develop a world auxiliary language as "quixotic." *May I* refer him to my article "Zamenhof's journey from Esperanto Humanism" in *New Humanist* (February 1979)?

Zamenhof was a respected Polish oculist and scholar, familiar with many languages and desperate to bring peaceful communication between people who only hated each other because of linguistic barriers. He does not deserve to be ranked with other less altruistic language inventors.

Esperanto may not be popular in the United States, ostensibly a monoglot culture, but in fact, one in which several languages compete for recognition. However, it is popular in other parts of the world, even though this popularity is threatened by the continued penetration of English, a difficult language to learn.

Esperanto is a beautiful and simple

language, a distillation of the best features of natural (unplanned Indo-European languages) and it would be a pity if it failed to become what its inventor intended, a second language for all mankind.

Steuart Campbell
Edinburgh, Scotland, U.K.

I found Martin Gardner's article on artificial languages fascinating. Since he is my favorite polymath, it is with trepidation that I venture the following.

It's stated that the "Hebrews tried to scale the heavens by building the Tower of Babel." If one takes the Old Testament account at face value, it was all of humanity that undertook that project not long after Noah's flood, the Hebrews having yet to arrive on the scene. They presumably descended from Eber, who was either Noah's great-great-grandson or great-great-great-grandson.

"Why did Adam name the elephant an *elephant?*" we're asked. "Because, goes an old joke, it *looked* like an elephant." The joke appears in several of Mark Twain's sketches, although in his versions it's always Eve who does the naming. In *Extract from Adam's Diary,* Adam says, "Been examining the great waterfall. It is the finest thing on the estate, I think. The new creature calls it Niagara Falls. . . . Says it *looks* like Niagara Falls. . . . always that same pretext is offered—it *looks* like the thing. There is the dodo, for instance. Says the moment one looks at it one sees at a glance that it 'looks like a dodo.' It looks no more like a dodo than I do."

I was surprised to see no mention of Loglan. Loglan has a dictionary, grammar, and computerized learning assistance. Unfortunately, it has schismatized into at least two rival dialects.

Alfred R. Matthews
Huntsville, Ala.

Your article "Klingon and Other Artificial Languages" incorrectly reported: "*Reader's Digest* publishes an Esperanto edition."

Reader's Digest does not—nor did we ever—publish an Esperanto edition, although we do, however, publish in 18 other languages around the world.

We just thought we should set the record straight for your files.

Craig Lowder
Public Relations Director
Reader's Digest
Pleasantville, N.Y.

Martin Gardner replies:

I have not been able to find where I saw a statement that Reader's Digest *had an Esperanto edition. I am grateful to* Reader's Digest *for correction of the mistake.*

Talk Shows Respect the Masses

Since March of this year, almost every major newspaper and magazine has published an article condemning the genre of TV talk. Without exception I have found these articles patronizing, elitist, simplistic, and moralistic. With Gene Emery's "A Psychologist Studies the 'Shameless' Talk Shows and She's Angry," (*SI,* July/August 1995), SKEPTICAL INQUIRER has joined this orgy of self-righteousness.

From the SKEPTICAL INQUIRER I'd expect criticism of the accepted point of view; instead I see endorsement.

Emery's article begins with quotations from Vicki Abt, who wrote an interesting but, in my opinion, simplistic essay about talk shows last year for the *Journal of Popular Culture.* Abt tells us that while watching a videotaped murder on an episode of "Sally Jessy Raphael" she "freaked out. I was screaming. I was crying." She asks, "What is the point of this?"

A good question, but one she doesn't answer. Instead she jumps to the same conclusions other critics have: Talk shows are freak shows, the guests are "white trash" or "pure dreck," the audience is a collection of heartless voyeurs, the hosts are greedy, lying, and manipulative.

It's easier to discuss others than to analyze ourselves. Had Abt done a little self-analysis she would have discovered one important reason people watch talk shows: emotional involvement. She was crying and screaming, yet it didn't occur to her that she was supposed to.

Professor Richard Lazarus explains in the book *Passion and Reason: Making Sense of our Emotions* (Oxford University Press, 1994): "If members of the audience are not moved, they would leave, or become bored and inattentive. . . . Only when the plot fails to touch the audience is emotion absent. This means that to be popular with audiences a play must portray real-life themes that are personally meaningful to the audience and must generate emotions. . . ." This is true of all successful works of art, from Homer to the present. From Homer to Oprah.

Abt and her fellow critics feel a certain bonding to Plato, who opposed poets and the mass audience. He believed both were irrational and amoral. Abt sees danger in talk shows for the same reason Plato saw danger in theater: they indulge in the emotions of pity and fear. Plato and Abt prefer repression to indulgence.

When Sally Jessy Raphael said on America Online "I believe that it is more important to do the shows that the majority of the public asks for than to determine by myself what I want them to see" she was demonstrating a greater respect for the masses than any of her critics can comprehend.

Damion Doohan
Windsor, Calif.

More on Vitamin C and Illness

Harri Hemilä, in a letter (*SI,* July/August 1995) responding to Stephen Barrett's "The Dark Side of Linus Pauling's Legacy" (January/February 1995) cites Anderson et al. (1) on the effect of vitamin C supplements. He says the Anderson study "found that vitamin C supplementation (1-4 g/day) decreased the 'numbers of days confined to house' per subject by 48 percent in subjects with a low dietary intake of fruit juices."

Barrett's reply in the same issue to the letter challenges Hemilä's reporting accuracy, but Hemilä is correct: Anderson et al. reported (Table IV) that for subjects taking three ounces of juice or fewer a day, the average confinement caused by colds or other illness was 1.87 days for the placebo group and 0.98 days for the vitamin group; (1.87 – 0.98)/1.87 = 47.59 percent.

Barrett calculates the reduction in disability time as 30 percent. A reading of

Anderson et al. shows that this percentage is derived from their Table II, in which they report results for *all* of their subjects, including those taking four or more ounces of juice.

Both percentages are meaningful; the larger of the two indicates that vitamin C supplements are especially useful for persons who have diet deficiencies. Barrett, however, doesn't say he is citing a different part of the Anderson data, and thus makes it seems that Hemilä has either misread or misrepresented Anderson.

Edgar Villchur
Linus Pauling Institute of
Science and Medicine
Palo Alto, Calif.

1. Anderson, T. W., D. B. Reid, and G. H. Beaton. Vitamin C and the common cold: A double-blind trial. *Can. Med. Assoc. J.* 1972, 107:503-8.

Stephen Barrett, M.D., replies:

Villchur is correct that Hemilä and I referred to different figures. The idea that people with a dietary deficiency might benefit from increasing their intake of the missing nutrient(s) is hardly novel. In most cases, this should be done by improving one's diet rather than by taking supplements. There is no evidence that ingesting amounts of vitamin C beyond what the body needs will prevent colds. Taking supplements (or drinking extra fruit juice) may slightly reduce the symptoms of a cold, but adequately nourished people have little or nothing to gain by doing this.

I comment further on the vitamin C matter—three letters (May/June issue) and specifically the letter (July/August) from Edgar Villchur of the Linus Pauling Institute. He recounts Gladys Block's summary of epidemiologic data on vitamin C, stating that 33 of 46 papers show "significant protective effects on cancer mortality and incidence."

I reviewed the references in her paper and found that all referred to vitamin C in the *diet*. None referred to ascorbate *supplementation*. The same conference had a paper by Stadtman about the chemical dangers of ascorbate, which in high dose causes denaturation of proteins, nucleic acids, and lipids. Ascorbate destroys mammalian red blood cells, and has caused death from red cell destruction in humans. It is a pro-oxidant, acting by reducing iron and copper which then produce oxygen free radicals. Ascorbate is listed as a toxin in biochemistry texts because of this activity.

The Enstrom epidemiologic paper that showed increasing cancer protection with increasing ascorbate suppmentation did not consider the likely decreased fat intake in people who would supplement their diets with ascorbate. The Enstrom paper demonstrates the dangers of over-interpretation of epidemiologic data, and confused association with cause.

Dr. Barrett was correct in stating that ascorbate probably has no effect on viral illness. The tighter the controls in the Anderson Toronto studies, the less the ascorbate effect. The five best done, prospective studies showed no effect (references on request). The book is nearly closed on the subject of vitamin C supplementation for prevention and treatment of colds, "flus," and cancer. Might as well reopen the great Laetrile debate.

Wallace Sampson, M.D.
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Nature of Scientific Investigation

In a letter in the July/August issue, a reader chastised Dan Larhammar for "unscientific language" for referring to "evidence . . . that argues against evolution as a phenomenon." The reader's point was that, since evolution is true, it is impossible for there to be evidence against it.

Unfortunately, this position shows a profound ignorance of the nature of scientific investigation. In virtually every scientific topic of importance, there is a wide spectrum of evidence both for and against (and often some pointing in yet other directions). This is all evidence, whether true or not, and this is what must be weighed. There is no a priori (nor easy) way to separate credible from false evidence—instead, evidence must be tested bit by bit. To use "what all scientists accept" or "the known truth" as criteria for credibility would put the scientist exactly in the same league as the creation "scientist" who, since he or she already knows evolution is false, can find no evidence for evolution.

Consider as an example that 50 years ago, accepted scientific theory held that the continents were immovable. Evidence to the contrary was held to be patently false by most scientists. We now accept plate tectonics as proved beyond reasonable doubt. Unwillingness to consider evidence because it does not fit our conception of "truth" is a sure way to stagnation and error.

Arthur H. Harris
Laboratory for Environmental
Biology, Centennial Museum
University of Texas at El Paso
El Paso, Texas

Neanderthal Brains

Robert Baker, attempting to refute Terence Hines's claim that Baker's book *Hidden Memories* is full of factual errors (*SI*, July/August 1995), states that "truly 'modern' man did not appear until the Cro-Magnon brain showed a tremendous increase over that of the Neanderthal." This is blatantly incorrect: Neanderthals had brains at least as large as early *Homo sapiens* ("Cro-Magnon"), and definitely larger than modern humans. The endocranial volume of Neanderthals ranged from 1245 ml to 1740 ml, with an average of 1485 ml ($n = 20$, $SD = 142.4$), which is comparable to the mean of "Cro-Magnon" (Holloway 1985). The mean endocranial capacity of modern humans ranges from 1200 ml to 1500 ml, depending on the population. The large brain size of Neanderthals is a well-known fact; while I have given the primary reference above, this data is mentioned in both textbooks (Klein 1989) and popular works (Stringer and Gamble 1993).

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Tenth-Century Skepticism

I came across this item recently and just had to share it. It was written in the early tenth century by the Persian physician Razi, clearly someone who had had his fill of snake oil salespersons:

> The tricks of these people are numerous and it would be difficult to mention all of them in a treatise such as this. They are insolvent and believe they can inflict pain on the public for absolutely no reason at all. There are among them those who claim that they can cure epilepsy by making a cross-shaped incision on the middle of the head. Then they produce things they have brought with them which the patient is led to believe were extracted from the incision. Some of them pretend to extract from the nose a venomous snake. They put a toothpick of piece of iron in the nose of the unfortunate patient and rub it until blood begins to flow. Then the quack picks up from there something he had already prepared, like this animal, which he claims to have extracted from the veins of the liver. Some pretend to remove cataracts from the eyes. They scrape the eyes with a piece of iron. Then they place a fine coating on it which they extract as if it were the cataract. Some pretend to suck water out of the ear. They put a tube in it and then put something into the tube from their mouths which they suck out. Some insert worms generated in cheese into the ear or into the roots of the teeth and then extract them.

The above is from Toby E. Huff's *The Rise of Early Modern Science: Islam, China and the West* (Cambridge: Cambridge University Press 1995) pp. 173-174. Huff goes on to comment, "And this is only half of Razi's catalogue of medical malpractice." I assume that the rest can be found in Huff's source: Leiser, Gary, 1983, "Medication Education in Islamic Lands from the Seventh to the Fourteenth Centuries," *Journal of the History of Medicine and Allied Sciences*, 38:48-75.

Walter F. Cuirle
Ardmore, Pa.

Alternatives to 'UFO'

In your May/June 1995 issue, p. 62, a reader complains that "UFO" (Unidentified Flying Object) is a misnomer because we do not know that these are "objects" and that they are "flying." You answer that this acronym is too ingrained in the popular language to be changed.

In a situation like this, the best solution is to retain the acronym, but change what the letters stand for. I propose: UFO = Unidentified Firmamental Observation.

You may want to start a contest for the best relabeling of letters.

Maurice M. Mizrahi
Burke, Va.

UV and Antarctic Ozone Hole

This refers to the "ozone controversy" letters in the March/April *SI*. [See Boyce Rensberger's "A Reader's Guide to the Ozone Controversy," *SI* Fall 1994.] As editor of the *Antarctic Bibliography*, published by the Library of Congress under National Science Foundation funding, I can provide some input on the question of ozone hole research. My remarks are specifically directed to the letter from Jim Scanlon deploring the lack of ultraviolet measurement data relating to the ozone hole.

Although no expert on the subject, I can verify that there are an abundance of published papers documenting surface and undersea UV measurements in the Antarctic as a function of ozone depletion. I can cite several dozen such papers in the past two years. Increased UV stress in Antarctic ecosystems caused by the ozone hole now is well documented, including effects on plankton tens of meters below the sea surface. NSF in 1988 set up a network of UV recording stations around the South Pole; a commonly used instrument is the UV spectroradiometer.

This UV research is being published in numerous journals, including *Journal of Geophysical Research, Antarctic Science, Marine Biology* and others. Scanlon appears not to be looking in the right places.

Stuart G. Hibben
Head, Cold Regions
Bibliographic Project
Science and Technology Division
The Library of Congress
Washington, D.C.

Exposing Psychic Sleuths

I read with interest Robert Baker's review of *Exposing Psychic Sleuths* (*SI*, May-June 1995) and will be ordering a copy right away.

Employing "psychics" to try to solve crimes may be a waste of time. However, search-and-rescue teams experience a more pernicious effect of self-proclaimed "psychics." When a child (or adult) is lost in the woods, "psychics" may distract search efforts from high-probability areas determined by scientific search strategy. This could delay finding search subjects, and the longer people are lost, the more likely they will die from exposure. And search-and-rescue is not without hazards for team members: "Psychic" information may lead team members to hazardous areas that they would otherwise avoid, risking the lives of searchers.

I urge those investigating "psychic sleuths" to focus on those who purport to aid search-and-rescue teams. No matter how well intentioned, their efforts may kill.

Thank you.

Keith Conover, M.D.
Field Team Leader and
Incident Commander
Allegheny Mountain Rescue
Group
Mercy Hospital
Pittsburgh, Pa.

The letters column is a forum for views on matters raised in previous issues. Letters should be no more than 250 words. Due to the volume of letters, not all can be published. They should be typed double-spaced. Address: Letters to the Editor, SKEPTICAL INQUIRER, 944 Deer Dr. NE, Albuquerque, NM 87122.

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MASSACHUSETTS. Skeptical Inquirers of New England. Contact Laurence Moss, Ho & Moss, 72 Kneeland St., Boston 02111.

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WASHINGTON. The Society for Sensible Explanations, P.O. Box 7121, Seattle, WA 98133-2121. Tad Cook, Sec/Treas. (E-mail: tad@ssc.com).

WISCONSIN. Contact person: Roxine McQuitty, MATC-West, 1200 S. 71st St., West Allis, WI 53214 (414-456-5402, 414-873-4446, McQuitty@Music.lib.MATC.edu).

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Please send updates to Barry Karr, P.O. Box 703, Amherst NY 14226.

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- Prepares bibliographies of published materials that carefully examine such claims
- Encourages research by objective and impartial inquiry in areas where it is needed
- Convenes conferences and meetings
- Publishes articles that examine claims of the paranormal
- Does not reject claims on a priori grounds, antecedent to inquiry, but examines them objectively and carefully

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